COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

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Be Fair, Even if It Hurts

MARINERS are credited with an uncanny faculty of reading "signs" and foretelling weather. When a seafaring man of experience says: "A hard blow is coming," his companions do not charge him with willing the storm or of wishing it on.

At the conference in Washington on June 7 between representatives of the coal industry and Secretaries Hoover and Fall and Senators Frelinghuysen and Calder, Mr. Hoover is quoted as having said: "Coal is the next thing to come under the government. It is much like the railroads." No stenographic record was made of this conference and all that was carried away were impressions. No serious-minded auditor left that meeting with any idea that Mr. Hoover wished proposed or advocated that coal be put "under the government." He was stating an opinion on conditions as he has observed them. To put any other interpretation on his remarks is at least misapprehension, if not misrepresentation.

It will be remembered that in May, 1919, Dr. Garfield, speaking before the convention of the National Coal Association in Chicago, said that it was no longer a question of whether or not the government would take a hand in coal but how soon and in what manner. No one has accused Dr. Garfield of having had any motive in making such a statement other than speaking truthfully straight from the shoulder. Because we oppose the regulation of private business, and coal in particular, is no basis for blinding ourselves to the existence of a world-wide tendency toward nationalization of certain basic industries. To recognize the fact as a starting point in opposition and to rally to the opposition such a man as Mr. Hoover, whose sympathy is with business in a big way, would seem better than the "bitter-end" policy of giving a sinister meaning to every official remark that bears a Washington date line.

Competition Between Anthracite and Bituminous

UNTIL 1871, or fifty years ago, anthracite was produced in greater quantity than bituminous coal. It was the principal coal in use in the United States in those days because it was nearer to civilization and because it was the fuel for the home. The production of anthracite now exceeds that of any single bituminous field and it is still the dominant household fuel in this country, and almost the exclusive fuel for house heating in the populous Eastern section of the country.

One out of every six tons of coal of all kinds produced in the United States is used for domestic purposes, and of anthracite at least 60 per cent of the total falls in this category. It is this one ton of coal that is the contact of the public with the industry, for by the cumulative effect of many men's opinions of coal, formed in laying up each his domestic supply of coal, is molded the public opinion for which we have so much respect. To the railroad, the public utility and the industrial coal is a raw material the cost of which is eventually passed on in the price of transportation and manufactured articles. But for the householder coal is a finished product and what he pays for it interests him as much as that of any other necessity.

As it is price above all that brings unfavorable opinion to a focus on an industry it is certain that it is in this respect that the public may now be displaying any measure of unrest toward anthracite. The prices of soft coal for household use are reduced generally in conformity with the marked decreases in mine prices of that coal, but for anthracite the prices have either held even or have gone up consistently during the past four years. Except to note in passing that the selling prices of anthracite have been augmented by increments comparable with increases in costs we would dwell here not on the reasons but on the fact. Domestic sizes of hard coal at from $7 to $8 per gross ton at the mines and from $12 to $18 per net ton delivered at the curb of the consumer after freight and retailers' margins have been added puts this fuel in the luxury class. The problem is: What can be done to change or relieve the situation?

The cost of producing anthracite and the selling price of the domestic sizes swing up and down in long cycles, the crest of each higher than the one before, moving in much the same way as do the prices of bonds. The tendency is ever upward, with increasing costs due to deeper workings, thinner veins and higher wages to labor. The cost of this fuel cannot indefinitely continue to increase and the supply grow less and consumers remain satisfied. Whatever urge there now is from the individual consumer for legislation looking to the regulation of the coal industry comes because of the prices of anthracite. Relief is discernible in two directions, in neither of which have aggressive steps been taken as yet.

Domestic sizes of hard coal are sold at prices disproportionately higher than the cost of production because on the average 40 per cent of the total mined is fine coal that cannot be sold except as steam coal in competition with bituminous coal and at prices well below what it costs to produce them. The domestic sizes must not only pay their own way but a large part of the way of the junior sizes. Were the producers of anthracite to realize more money from the sale of the steam sizes they could, and doubtless would under economic pressure, sell the domestic sizes at lower prices. In the present development of the business full advantage is not taken of the market possibilities of fine anthracite and it is sold too generally for what it will bring rather than for what it is worth. The merchandising of anthracite is the merchandising of domestic sizes, and they sell themselves ten months out of every year. It is not salesmanship to move fine anthracite when con-

sumers cannot get bituminous, as in 1917-18 and during a large part of last year.

Higher realization by producers and distributors of anthracite can be obtained for the steam sizes only by intensive selling coupled with greater engineering knowledge of how to use this kind of fuel. Sufficient has been done along these lines by a few to demonstrate the possibilities of putting the junior sizes more nearly on an equal footing with soft coal instead of trailing as an inferior substitute.

The other obvious direction in which relief can be had from high prices of household fuel in the East is to introduce substitutes for anthracite. To most Easterners it is astounding that such a large portion of the people of this country manage to heat their homes with bituminous coal. Having known no other house fuel save hard coal they find it difficult to appreciate the possibilities of soft coal. Half the United States uses bituminous coal and lignite for domestic fuel. For the most part these people do not even have superior bituminous, such as the smokeless of West Virginia and central Pennsylvania, but high-volatile coal of lesser heating value, as that from Ohio, Indiana, Illinois and the Western States. Just as the hard-coal industry has been passing up a good thing by not more aggressively selling its fine coal for steam use, so have the bituminous producers overlooked a golden opportunity in not forcefully introducing the Easterner to their product as a household fuel of greater heating value, less ash and lower price than anthracite.

All the Frelinghuysen and Calder bills known and yet to come could not accomplish for the stabilization of the industry and for the cheapening of coal to the consumer what could be accomplished in the course of a few years by a definite program, aggressively pursued, by the coal industry looking toward the wider use of fine anthracite for steam purposes and the substitution of bituminous coal for a part of the large sizes of anthracite for household coal. We suspect that there are a few southern Illinois companies who could make soft coal move to private cellars in the effete East.

Heavy Returns—in Experience

IN THIS issue we publish a news story of a co-operative coal-buying effort by farmers in ten Middle Western States. Coal is to be bought by secretaries of farm bureaus in the coal-producing states in the East and Middle West, who are to act as purchasing agents for their Western brethern, who in turn will handle it through grain elevators and local co-operative agencies. It is asserted that 3,000,000 tons a year represents the combined requirements of this group.

We presume the first impulse of retailers and jobbers will be to say that if the farmers can buy, transport and distribute the coal and collect the money for it on any slimmer margin than the coal man is getting now, they are welcome to it. Should the farmers succeed in their enterprise, coal middlemen and retailers serving this territory presumably would suffer a corresponding decrease in their business. As a matter of fact the tonnage that such a group can swing is far from 3,000,000, and whatever it may be at the beginning it will be successively smaller as the enterprise peters out.

These farmers will learn, quite likely at some cost, that the fundamental premise on which they are working—that there is a large intermediate profit taken on coal between the mine and the consumer—is not tenable, at least in these times. It is not inconceivable that the farmers can in time perfect an organization capable of buying, selling and distributing their coal, but by the time they shall have reached the point where they can do the work as cheaply and efficiently as the coal men do it for them now, they will have to become coal men.

If the farmers really expect to see the program through, they would better start out full-fledged now and buy up a sufficient section of the coal industry to meet the needs and begin with a going business. Otherwise they will fritter away their enthusiasm in money losses. Few men in the coal business today would undertake the task of buying coal in half a dozen states to meet the diversified small-lot requirements of thousands of farmers in ten other states—if for no other reason than that other similar attempts have failed.

Reparations Not to Blame

IN FIXING the blame for the British coal strike on conditions arising out of the terms of the Versailles treaty and the Spa agreement some observers in this country are inclined to agree with the contentions of the miners' leaders in Great Britain that their ills are due to the "flooding of British markets with cheap German coal," as the *Colliery Guardian* puts it. It is argued, for instance, that were it not for the forced exports of coal from Germany to France, Belgium and Italy under the Spa agreement, those countries would have taken much larger shipments from Britain, thus insuring a satisfactory income to British mine owners.

Although the flood of German coal may have been a factor in precipitating the trouble in Great Britain, it does not seem that it was the principal cause. The trouble started after the first of this year, when the world market for coal declined and British shippers faced a rapidly falling market at a time when their costs of production had just been raised following the strike of miners in the autumn of 1920. Cardiff coal, that brought 115s. in December of last year, dropped to 85s. in January and 58s. in March, despite increased wages and costs. In the same period coal in this country dropped from prices ranging from $5 to $8 to an average of around $3 and $4 per ton. In the first quarter of this year Germany supplied 1,000,000 more tons of coal to France than in the corresponding period of 1913, and the United Kingdom about 1,300,000 tons less. The United States shipped nearly three-quarters of a million tons to France in the same months. German exports to Italy replaced English coal and increased production in Belgium reduced the demand on Britain.

In a larger way, however, it is apparent that it was the world-wide business depression that was responsible for the decrease in coal consumption, not only in Europe but in the United States. Great Britain has had no monopoly on idle coal mines and slack market in recent months, and no one here is laying the condition of our bituminous market to German reparations. Had it not been for that coal, France and other countries would not have piled up such large stocks as were on hand the first of this year or the drop in coal production, the world over, would have been postponed for a time. Unless the whole complex situation can be assessed against the treaty terms the few extra million tons of German coal supplied France, Italy and Belgium cannot be said to have caused the British coal strike.

Sizing and Preparing a Hard Low-Volatile Coal in the Broad Top Region to Compete with Anthracite

Most Coals from This District Are Sold as Run-of-Mine—One Firm, However, Has Built a Breaker to Prepare Five Different Sizes—Being of Hard Texture, the Coal Yields Readily to This Treatment

By Donald J. Baker
Wilkinsburg, Pa.

THE Broad Top region of Pennsylvania has always been regarded as a portion of the bituminous coal fields, even though from the standpoint of hardness the coals there occurring resemble anthracite. This latter is particularly true of one bed, the Kelly, the thickness of which averages from 3½ to 4 ft.

As a result of the prevalent obsession that any coal not strictly anthracitic in character should be treated as a bituminous coal the output of the Broad Top region has hitherto been shipped as run-of-mine or as lump, nut and slack and with only the crudest of preparation. As a result it has had to compete with the bituminous coals and at some disadvantage, for the coal is not thick and mining costs are accordingly high. To utilize some of the devices used in the preparation of anthracite, however, would be inadvisable, but no more so than to prepare it as bituminous coal when its qualities give it a place in a more exacting market and one which for that reason is ready to pay a higher price for it.

One operating company in the field, the Economy Domestic Coal Co., has had the courage to believe that a new market might be created for its product if preparation similar to that given to anthracite were employed. Even though the coal might not be in position to command anthracite prices, yet a return higher than that obtained from a bituminous mine product might be easily realized. This coal partakes of the nature of both anthracite and bituminous; consequently it is reasonable to suppose that it might create a market of its own, for the presence of a slightly larger percentage of volatile matter in this coal than in anthracite serves to make it freer burning.

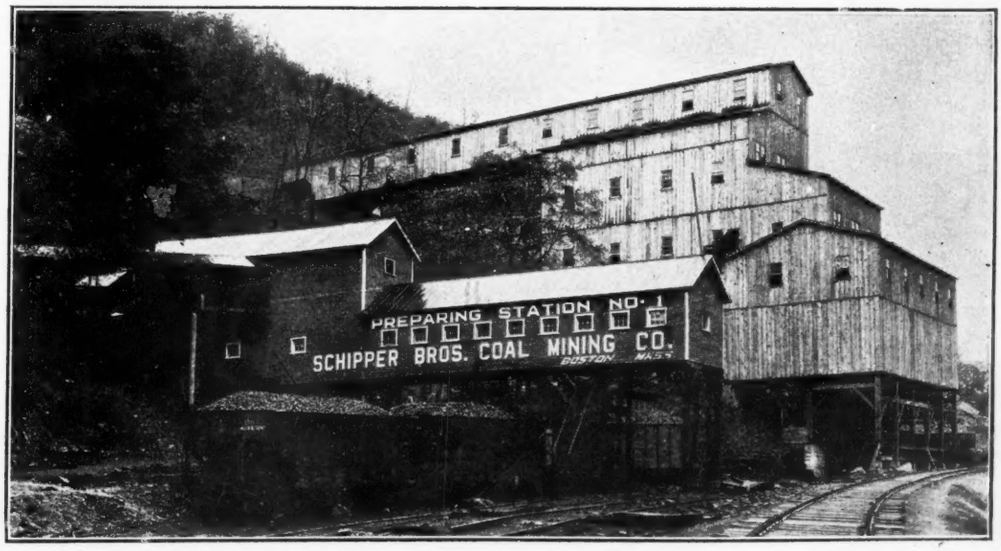
To this end a preparation plant known as the Pioneer Breaker has been installed. It more closely resembles the dry breakers in the anthracite region than the tipples of the bituminous fields. No jigs are used in the building, and fewer sizes are made than in standard breakers, but that variation from the usual practice is to be expected. As the output lies half way between anthracite and bituminous it is natural that the preparation should partake of the same happy medium. It is quite likely that other breakers like this one will be erected, for wherever coal is hard and low in volatile matter this general type of treatment should be introduced in place of the regular bituminous-coal equipment.

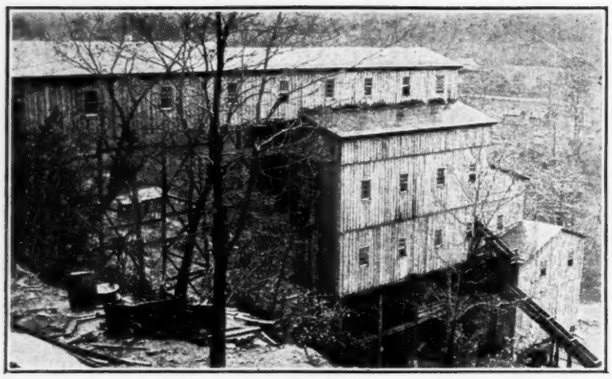
The plant, which is a subsidiary operation of the Schipper Coal Mining Co., of Boston, Mass., is located at Six Mile Run, near Riddlesburg, Bedford County, Pennsylvania. The breaker is served by two openings less than half a mile apart and located at equal distances from the breaker. Though these points are near each other the seam has in that short distance made a radical change in direction of slope, so that one opening dips heavily into the mine and the other steeply toward the surface. The opening to the left of the breaker is one that goes to the dip and here the empty trips are run by gravity to the innermost sections of the workings. That on the right has an electric hoist by which the empties from the breaker are hauled into the mine. Few beds of coal are operated under more adverse conditions than are encountered in the Kelly bed. The seam lies in a series of troughs, and the rolls and pitches occurring in it make haulage, ventilating and pumping problems peculiarly vexing.

The empty trips made up on the track to the left of the breaker entrance are lowered down the slope by a Lambert hoist engine which is located on the surface. The hoist is equipped with double drums and housed

Breaker in Broad Top Region

The preparing station in the foreground was used while bituminous methods were practiced. The breaking down of excessively large lumps and the sizing into five sizes made it necessary to build the breaker shown in the rearground.



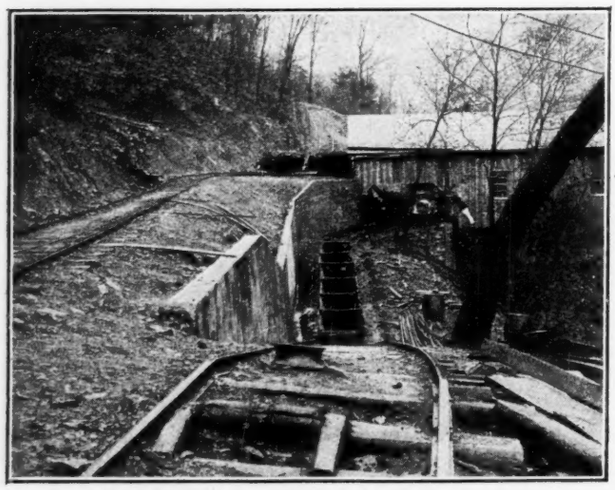


SIDE VIEW OF BREAKER FROM LEFT STORAGE TRACKS

The chute leading away from the structure carries the refuse and bone coal removed by the pickers to a large hopper, from which it is transported by a larry to a culm pile at some distance from the building.

in a frame and concrete building. From the foot of the slope, to which the furthest advanced butt entries are tributary, the loads are elevated to a point near the hoist house. Here the grade changes and favors the trip for the remaining distance to the breaker. At the knuckle the trip is stopped and a tail rope from the second drum of the hoist engine is connected to the rear car. This tail rope, of course, leads around a sheave. After it has been adjusted the trip is once again put in motion by the head rope and moved to such a point that the cars lie on the grade leading to the breaker. Here the weight of the trip comes on the tail rope. The head rope, which is now actually the tail rope by reason of the trip being under control of the other side of the hoist, is removed from the front car, and the trip dropped into a storage track leading to the dumping floor of the breaker.

After being discharged and made up into trips of empties the cars are taken from the storage track and hauled to the knuckle by the rope which was used to lower the loads into the building. When the trip is once more balanced on the knuckle the head rope is again attached and the trip pulled over the rise until its weight comes on the head rope. The tail rope is then detached, and the cars are permitted to move by gravity into the mine.

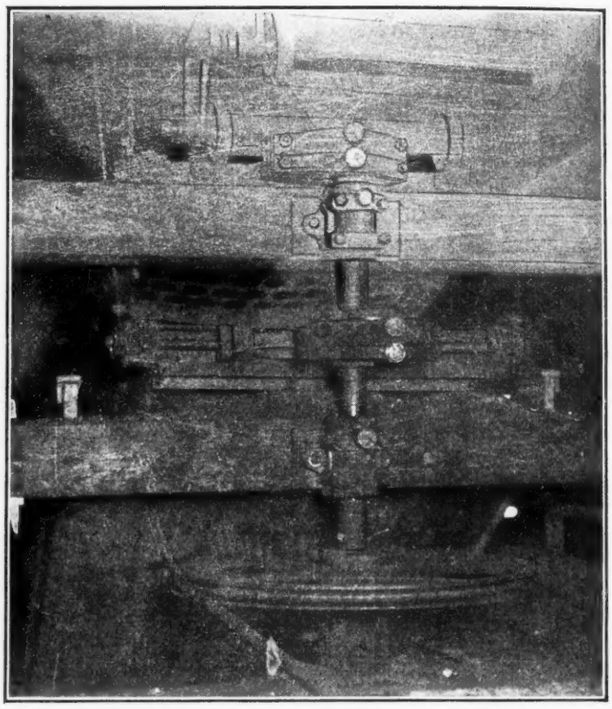


LOADED AND EMPTY STORAGE TRACKS ON LEFT OF BREAKER

The road from the mine is down hill, but the loads have to be pulled out of the workings by a hoist. The roads shown in the distance go to another mine, where the loads run out by gravity.

The loads from the other mine opening are dropped from the mine directly into the breaker. The empties are picked up from the storage track on the right and elevated up the incline and into the mine by the hoist engine situated at its head. The breaker entrance is about 1,800 ft. from the mine opening, and the surface roadway lies on a slope of 4½ per cent in favor of the loads. The hoist engine is located 1,300 ft. within the mine and operates over a grade averaging about 3 per cent.

Loaded trips coming from either mine opening pass into the breaker over the same feed and storage track. The cars are then discharged over a Phillips cross-over dump, the coal passing to a bin below it. After discharge the cars gravitate to a kick-back at the rear of the dumping floor and are then directed to a track leading to either the right or left outside yards. The empty

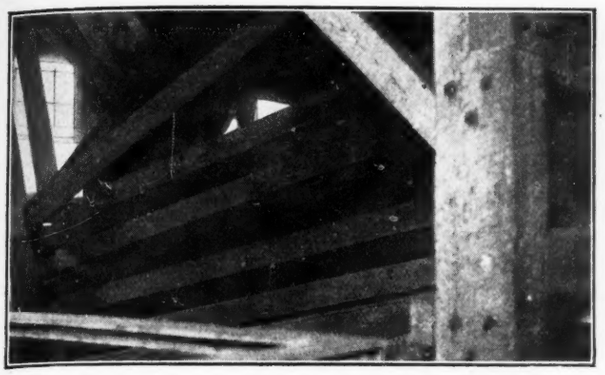


MAIN SCREEN-DRIVING PULLEY AND VERTICAL SHAFT

Both screens are driven from the same vertical shaft by means of eccentrics. This view was taken beneath the hopper under the dumping floor and shows the screens receiving the coal from the oscillating feeder.

cars are not alternately switched to the right and left storage track, but the switch is kept in position till a complete trip is made up for the particular opening which has just delivered loaded cars to the breaker. It is seldom that the hoists deliver trips simultaneously.

On the third floor of the building, or that at a level next below the dump, coal from the bin is fed to the first screen by means of a reciprocating feeder. This shaker is driven by a vertical shaft from a horizontal pulley rope-connected to the main driving shaft and operated by a 50-hp. motor installed upon this floor. All the breaker machinery is driven by this one motor, which is belted to a large flywheel on the main driving shaft. Belts are led off from this shaft at various points to operate both the screens and the crushers. From the feeder the coal enters a double-decked screen. The upper deck is provided with plates having 4-in. perforations, while those on the lower deck are only 2½ in. in diameter.



EGG, STOVE, CHESTNUT AND PEA SCREENS

The coal being fed to these screens comes from the crusher on the floor above and from the first screen on the same floor and passes over or through the egg, stove, nut and pea screens for sizing. The shakers are in pairs and are driven as two double-decked screens.

As the lump sizes leave the upper deck of the screen, they are chuted to a Wilmot roll crusher, the impurities being picked from the coal as it passes through the chutes. The refuse is thrown into a chute which leads directly to a rock house on the outside of the breaker. Most of the extraneous material removed in the picking process consists of bone coal. This, although it possesses a fair fuel value, is not being sold. It is taken by a larry from the refuse house to a dump at the foot of the hill, where it will be stored. The 2½-in. product is directed into a chute leading to the floor below, and the slack is again screened before it enters a chute directing it to the slack pocket on the first floor of the structure.

The screens at their discharge end are supported by swinging laced timbers, and at the upper end they are suspended by hanger rods from eyebolts. This arrangement allows the end of the screen nearest the feeder to take a horizontal movement in two directions. This is desirable in that better preparation is thus obtained, although, of course, it induces a greater amount of vibration.

The chutes for both large and small lump sizes are built upon easy grades, so that the coal may be delivered to the floor below without undue degradation. The large lump chute leading to the crusher is set on an angle that barely permits the coal to move, thus allowing it to be picked in transit to the rolls. As its movement is slow, the pickers are provided with short wooden paddles with which they push the lumps into the crusher in case they will not move of their own accord.

On the second floor of the breaker the coal from the rolls unites with the 2½-in. product from above and enters a four-deck shaking screen. Here the lump coal, along with that removed as slack on the floor above, is sized into egg, stove, chestnut, pea and slack. The upper deck of this screen is fitted with a plate provided with 3-in. perforations which removes the egg size—that is, the coal between 3 and 4 in. in diameter. This product leaves the screen to enter a chute which conveys it to an egg pocket on the floor below.

The second deck is provided with plates having 2½-in. perforations. Here the stove size is removed, after which it travels to its pocket. The third deck is provided with plates having 1⅝-in. circular openings; the product from this plate is of chestnut size and like the others is shot to its pocket. The fourth screen removes the pea size or that over ⅝-in. in diameter. This is directed by a chute to its pocket, and the slack or that passing this last screen enters a chute leading to the slack pocket.

Demand for Buckwheat No. 1 Manifested

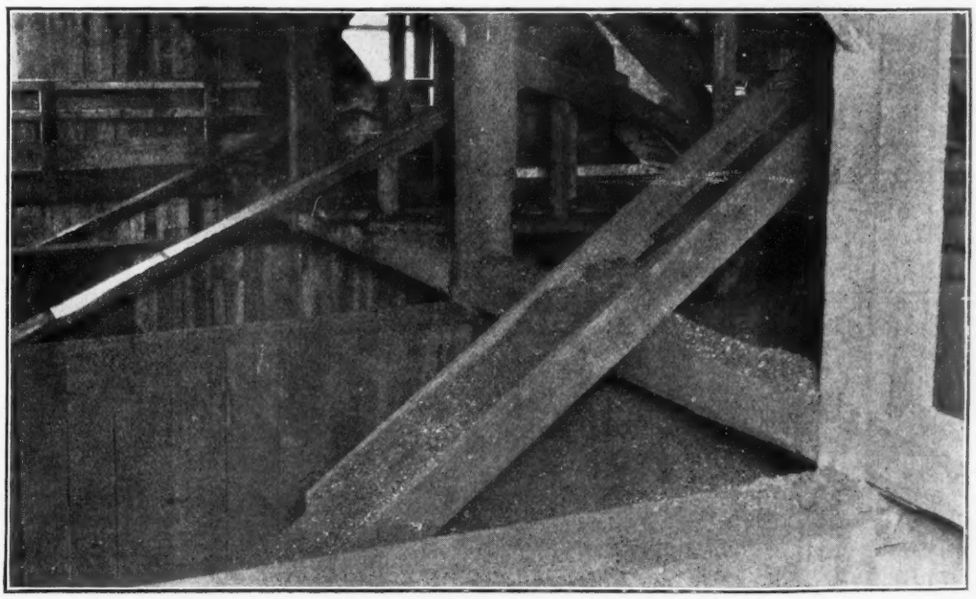
The first floor of the building contains only the various pockets for the five sizes and the chutes leading to them. Each pocket will hold 125 tons of coal. The chutes from the screens, which are stationary and rigid, are constructed on easy slopes so that each size passes gently to its destination. At the bin entrance the chute is divided, one side leading to one end of the pocket and the other to the opposite end, thus permitting the pile in the bin to build up from either end and not alone from one. This lessens the amount of breakage.

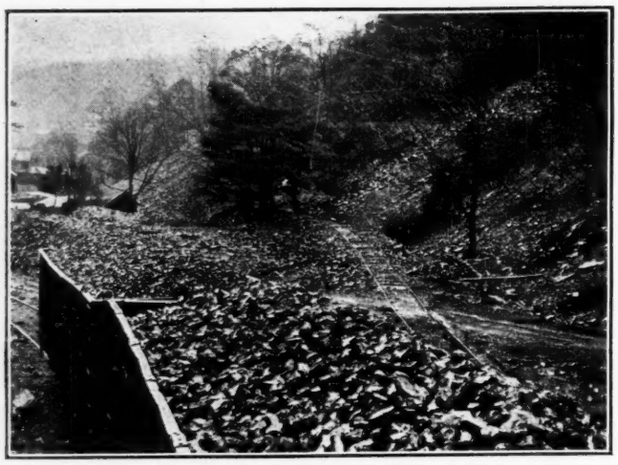
At present only five sizes are being prepared. There has been, however, an appreciable demand for No. 1 buckwheat, and it is probable that arrangements will soon be made for the preparation of this grade. The equipment has a capacity of 1,200 tons daily, but only 500 tons are now being loaded out.

Coal from the various pockets is loaded into cars upon a single track passing below and to one side of the bins.

Pockets and Chutes

The chutes are set at an angle that barely permits the various sizes to enter the bins by gravity. In this manner degradation is kept to a minimum. The stream is divided over each pocket so that the container may be filled at both ends simultaneously. This also prevents breakage.





CAR OF EGG AND ONE OF STOVE

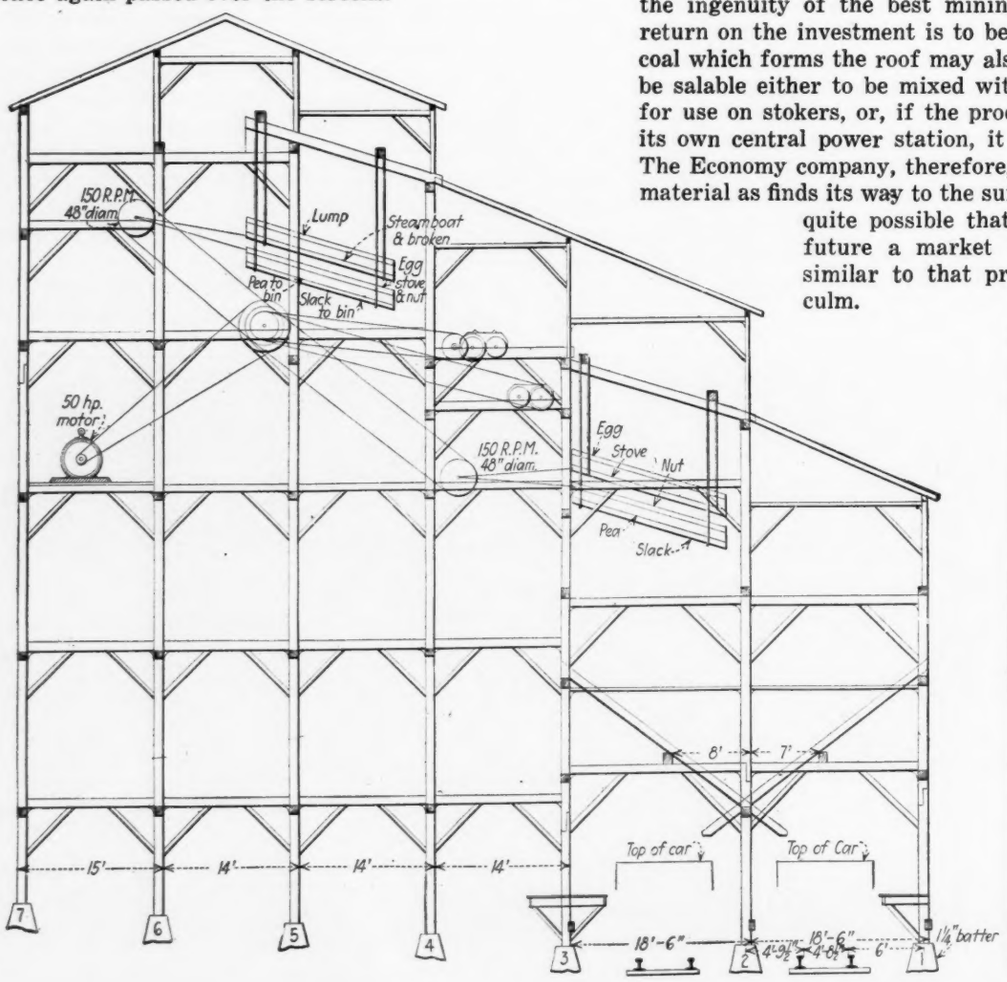
In order to burn properly, coal should be of uniform size, the pieces being neither larger nor smaller than one another, so that the draft will be equally distributed through the fire. The dump in the rear of the illustration is the culm bank, the material of which will be later reclaimed by a washer or used to produce power for a central station plant at the mine.

Lip screens remove any undersize coal that may have been formed in lowering the various sizes through the chutes and into their pockets. At present this material is deposited on a platform behind the loading chute. When an order for slack is to be filled this coal is shoveled into a car. This is a rather laborious method of handling it and some means will have to be installed for conveying this degraded coal from the slack platform to the second floor of the building, where it may be once again passed over the screens.

Fewer men are employed in this building than in the larger anthracite structures, and in this respect it resembles a bituminous tipple. Two men are stationed on the dumping floor, two on the floor below as pickers in the first preparation, and three boys as pickers on the second floor; another man is stationed at the lip screens but he also is employed as a car shifter. The coal is well sized and picked and closely resembles anthracite by the time it reaches the pockets.

It will be interesting to note how the ideas of this operating concern will be received by other producers working coals semi-bituminous in character but hard in texture. Most semi-bituminous coal is too friable for such treatment, but such as is hard could well be prepared for use in the market where anthracite is now favored. The Economy company has demonstrated to its own satisfaction that this coal can be handled in rigid chutes regardless of whether it enters the breaker wet or dry. It does not sell its product as anthracite, neither does it offer it as bituminous coal. As a result of its careful sizing and preparation it is able to command a higher price than any other operation in the Broad Top region. At the majority of plants in this district the coal is not sized at all, but is shipped exclusively as run-of-mine. The beds are rarely more than 4 ft. in thickness and one is being worked where the coal thickness averages little more than 24 in. If operations in the Broad Top district are to flourish it would appear that breaker methods must prevail.

Mining a 3½-ft. coal and preparing it for market by bituminous methods, when it is capable of enduring the treatment given anthracite, is a business that will tax the ingenuity of the best mining engineers if a fair return on the investment is to be obtained. The boney coal which forms the roof may also at some future time be salable either to be mixed with a higher-grade fuel for use on stokers, or, if the producing plant possesses its own central power station, it could be used locally. The Economy company, therefore, is piling such of this material as finds its way to the surface, feeling that it is quite possible that at some time in the future a market will be found for it similar to that provided for anthracite culm.



Cross Section of Breaker

It will be noted that the difference between this breaker and the ordinary tipple is that lumps larger than egg are crushed and that the coal is converted into five sizes—egg, stove, nut, pea and slack. As this coal, fed to a furnace, is uniform in size a uniform depth of coal bed gives a uniform draft. The furnace bed is not solid in one place and "holey" in another, as is the case where lumps are mixed with fine coal. Grate bars can be chosen suitable to the size of coal to be handled.

How Gravity Is Superseded by Mechanical Devices In Movement of Cars at Lytle Colliery

Gravity Being Too Uncertain, Empties Are Moved by Car Hoist, Plane and Go-Devil to Surface Landing of Shaft—Thirteen Men Handle the Cars, but Only Seven Are Engaged in Transportation of Empties and Loads

By Dever C. Ashmead
Wilkes-Barre, Pa.

PROBABLY one of the most difficult of the lesser problems encountered at anthracite collieries is the movement of cars, particularly empties, upon the surface. Where the distance from the shaft to the breaker is short loads do not often give so much trouble as empties, for as a rule they travel a shorter distance, and for that reason the grades may be made steep enough to insure proper movement without being so steep that the cars bump heavily when they come together. Handling the empties by gravity, on the other hand, requires that they be elevated the height necessary to afford gradient for the movement of the loads and as much more as is required for their own movement. This latter usually is greater than the height required by the loads, as for various reasons the journey is longer.

Unquestionably the most satisfactory method of handling cars on the surface is by some mechanical means. The use of gravity introduces many variables, and it is impossible to devise such a system as will handle cars with equal facility in both summer and winter, as they are much stiffer in cold than in hot weather.

Grades Made Short and Reasonably Steep

At the mine of the Lytle Coal Co., near Minersville, Pa., the hoisting shaft is some 800 ft. from the breaker, and the problem involved is the raising of the loads to breaker height and the return of the empties. The system formerly employed for this purpose was entirely unsatisfactory and gave much trouble, so that it became necessary to adopt some new scheme. In the new layout the loaded cars gravitate only a short distance to the foot of a plane.

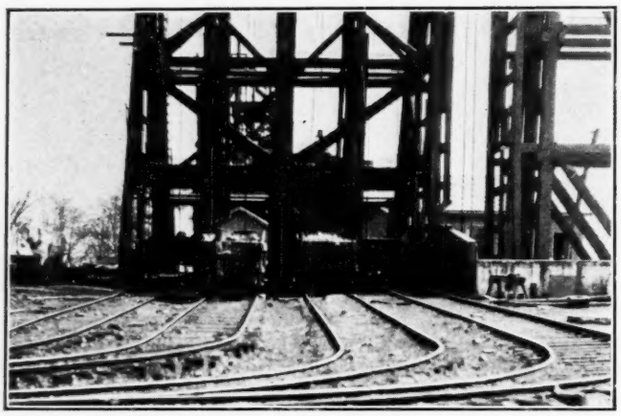
This grade is so steep that the cars will move with certainty over it, but is so short that they will not attain excessive speed. Up the plane the cars, in trips of four,

Power Plane

Four loaded cars are being pushed up the plane by a barney, and a trip of empties is being lowered. In the foreground on the right is the pit into which the barney runs, permitting the loads to pass over it. At the foot of the plane the empties are kept at a higher level than the loads in order to assist them in their travel to the shaft.

Empties Returning

The power plane is in the intermediate journey taken by the empties. They are first raised by the steam hoist and then dropped down the plane, after which the go-devil takes them toward the shaft. Note the four empties and also the barney, which is about to descend into its pit. This is the reverse of a gravity plane; the empties help to pull the loads up hill, but power is needed to raise the coal and overcome friction.



LOADED MINE CARS BEING DISCHARGED FROM CAGES

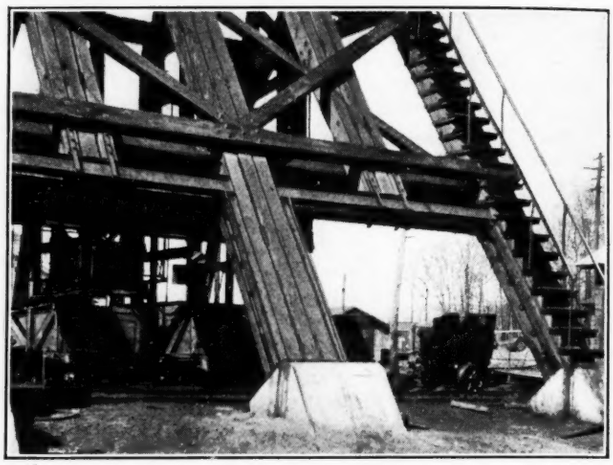
These mine cars are run by gravity to the foot of the barney plane. The mule to the left of the illustration is used to bring cars loaded with timber from the timber yard to the shaft. It is also used in cases of emergency.

are taken by a barney to the top of the breaker. The landing at the head of the breaker is only about 100 ft. long, and the cars move to the dump by gravity, the grade again being made so steep that the cars run at all times without trouble. In so short a distance, however, they cannot acquire excessive momentum.

From the dump the empties gravitate a short distance to an automatic steam car hoist. The oncoming car presses down a pair of horns and turns on the steam, which tilts up the track till the car runs off the device, its movement cutting off the steam, so that the track returns to its normal position. Thence the empty runs a short distance to the top of the same plane as that by which the loads were brought up.

The cars are made up into trips of four and are lowered down this plane by a barney, whence they are delivered to a long empty track at its foot. From this point they do not proceed by gravity but are moved by a go-devil, which hauls them to a knuckle, from which they gravitate over a distance just sufficient to permit one car to clear another to a transfer table which takes them to any one of the four tracks leading to the shaft itself. Thence the empty is run upon the cage. The distances traversed under the influence of gravity are thus short and sufficiently steep to give positive motion.

Both go-devil and transfer table are operated by one man. One or sometimes two men are required to remove the loads from the cages and transfer them to the head of the barney plane. Were it not that separation of rock cars from those loaded with coal takes place at this point, it would be necessary to place only one man here. At the foot of the plane one man is stationed to make sure that the cars get into proper position to be picked up by the barney. At the head of the breaker two men are employed to see that the cars reach the dump and three more discharge the coal. The services of a third man at this point are necessitated only by the fact that exceedingly large lumps are sometimes loaded into the cars and stick in the door and must be pried loose. One of the men is necessary at the top of the breaker to make up empty trips. In addition to these,



LAST STAGE IN THE JOURNEY

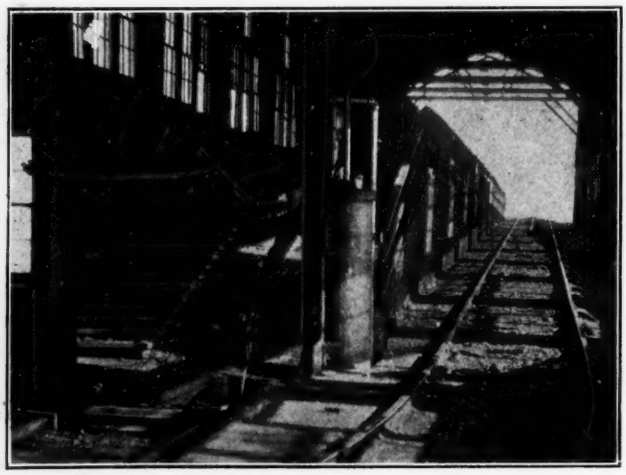
Cars reaching the tipple by the help of the go-devil are transferred by hand to a transfer truck which spots the car for the particular compartment through which it is to be lowered into the mine, this track being beneath the backstay of the large timber headframe.

two cagers are required at the shaft, which contains four compartments and thus needs one cager for each pair of cages. An engineer to operate the barney plane completes the force.

In all, thirteen men are required to handle the mine cars from the time they reach the surface until they are

STEAM CAR HOIST IN LOWERED POSITION

Empty cars one by one are kicked back at the dump and run down to the foot of the short plane shown in the center of the illustration, and in doing so they depress the horns which admit steam to the cylinder, lowering the wheel and raising the car hoist, as seen in the next illustration.



SAME CAR HOIST RAISED TO THE DISCHARGE LEVEL

The track on which the car was resting has been tilted up about six feet, so that the car is able to run off along the runway to the head of the plane. The horns are lifted with the track and when the car moves off, the steam is released and the hoist goes back to wait for another car.

again loaded upon the cage. The real number of men employed in transporting the coal is smaller than it appears, for it should be remembered that many of these hands are chargeable to other items than surface transportation. Thus the cagers should not properly be charged to this account; neither should be the dump men in the head of the breaker. Only seven men can be charged strictly to surface movement of loaded and empty coal cars, and it is possible that the services of some of these might well be charged to breaker operation rather than to transportation.

It will be observed that gravity is not relied on for the conveyance of empty mine cars except over extremely short distances. The movement of the empties is thus mechanical and positive, obviating the uncertainty of gravity operation.

Changes in Electric Mine-Locomotive Design During Past Quarter Century to Meet Present-Day Needs

Steel Drives Out Cast Iron for Frames—By Saving of Weight and Space in Frame Larger Motors Are Feasible—Helical Springs Vs. Leaf Springs—Two Springs Vs. One—Advantages of the Low Reel

By N. D. Levin*
Columbus, Ohio

ELECTRIC locomotives were introduced in the coal mines many years ago. From the date of their first appearance down to the present time, although there has never been any question about their fitness for the work in hand, they have nevertheless undergone a decided evolution, and few, if any, of the parts that went to make up the earlier machines are still employed in those of the present day. Of course, the early details have their counterparts in modern machines, but their size, form and shape have undergone a metamorphosis that renders the present-day components markedly different from their early prototypes.

Fig. 1 is a photograph of a locomotive built in 1898. The weight of this machine is about fifteen tons. It was equipped with three motors and was at that time considered a machine of excellent design. No doubt this was true, because this same locomotive is still hauling coal and has performed its allotted daily round of duty throughout the intervening years. A comparison with present-day locomotives, however, would reveal many differences in detail.

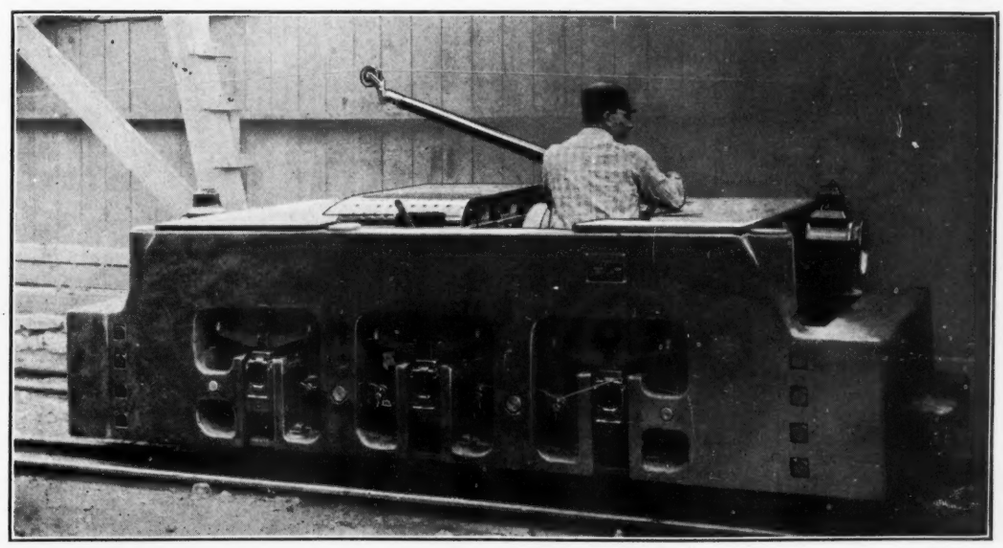
As the mines became more extensive and the distances over which coal had to be hauled increased, it grew evident that longer trips must be moved in order to obtain the desired output. It became necessary, therefore, to increase the capacity of the hauling units, and thus the power of the motors had to be made greater as compared with the weight of the locomotive. Eight horsepower per ton of weight was about the maximum capacity attainable in the early machines. This was because the cast-iron frame, the wheels, axles and other parts were made so bulky as to occupy much space compared to the driving units.

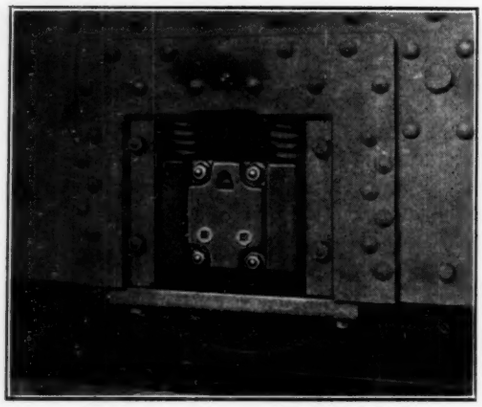
This being realized, the problem was presented of building a locomotive with the largest possible percentage of its weight concentrated in the motors and gearing and the least percentage in the frame, without sacrificing durability or making the machine subject to severe injury either in normal operation or in any wreck that might logically be expected.

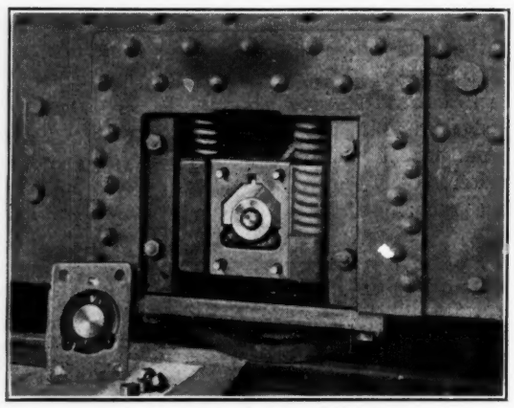
Working toward this end, I designed in 1908 a loco-

*Chief engineer, mining department, the Jeffrey Manufacturing Co.

FIG.1
Locomotive Made in 1898
Owing to the many joints in a leaf-spring suspension some manufacturers are abandoning them. By replacing the cast-iron frame by one of steel, weight and space are saved which can be utilized by providing larger motors and better braking and sanding devices.







FIGS. 2 AND 3

Axle Box

On each side of the axle helical springs are provided. These can be made long without weakening the frame, an arrangement not possible if the boxing is surmounted by a single spring.

motive with a frame made of rolled-steel plates. This type of frame was named "armorplate," and this name was registered as a trade mark. This frame in large measure solved the problem, as it was relatively light as compared to side plates of cast iron. As a result the weight of the locomotive could be concentrated in the motors and gearing and these parts thus made far more powerful for a given weight of machine.

Motors Can Outpull Wheels of Locomotive

A complete line of locomotives accordingly was constructed, with electrical equipment of such ample capacity that load and mine conditions became secondary considerations. The wheels would slip long before the locomotives would become overloaded. In other words, these machines were so designed that it was practically impossible to overload them.

In designing this line of locomotives advantage was taken of the fact that the plate frame took up far less space than frames of cast iron. This made it possible to improve such elements as the brake rig, sanding device and the like.

In the older machines, especially those of large size, trouble was experienced because the wear on the wheel hubs, collars and axle boxes allowed end play between the wheels and the frame. This permitted the gears to move out of line with the pinions, the wheels out of line with the brake rig and similar disorders, causing much expense for general upkeep and on account of delays.

In 1908 I devised an improvement intended to eliminate this end play and a patent application covering it was made at that time. A hardened tool-steel pin was inserted in each end of the axle and the journal boxes were provided with heavy bolted-on lids each bearing a hardened tool-steel plate on the inner surface directly opposite the end-thrust pins in the axles. When the locomotive is traversing curves or moving on crooked track, the hammering and side stress usually encountered are received by the thrust pins and transmitted by them through the journal boxes to the frame, thus eliminating wear on the driver hubs proper. When worn, thrust bearings of this nature can be quickly and cheaply renewed.

Another source of expense and trouble with the older type of mine locomotives was the flat leaf springs. Referring to Fig. 1 it will be noted that there are just fourteen joints in the suspension mechanism on each side of the machine, or twenty-eight in all. A two-motor locomotive would have nine joints on each side, or eighteen in all. When the machine is in operation these joints are in constant action and in consequence soon wear out. Another objection to flat springs was that they were more difficult to obtain than the plain coil of helical springs. They also cost more to replace. Still another and a more serious fault was that they took up too much room and consequently weakened the side frames. For these and various other reasons springs of this type were abandoned and coil springs adopted as a standard.

Why Two Springs Are Used to Each Axle

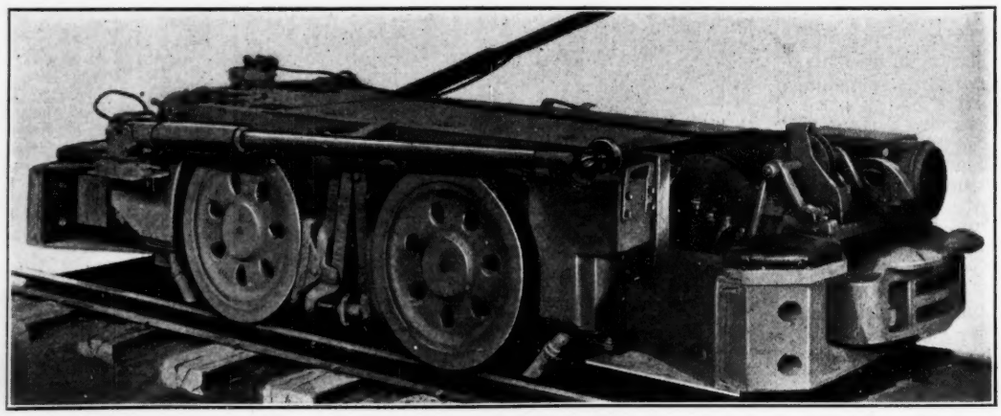
In the older designs one coil spring was placed on top of and in the center of each journal box. This method of suspension, however, was discarded, as the limited height of the locomotive frame made the space available much too small. Its application frequently entailed a choice between a spring entirely too short to give the desired flexibility and the cutting out of the side frame to such an extent as to render it liable to fracture.

In designing the journal boxes intended for use with armorplate frames one spring upon each side of the

FIG. 4

Reel Locomotive

Top of reel is level with top of locomotive. Trolley poles are mounted on outriggers. Motorman's seat is provided with a footrest and handrail. Vision of motorman is not obstructed by reel.



axle was provided. These were placed in pockets within the journal boxes. These pockets can be made of any depth to suit existing conditions and consequently springs which are as long as may be desired can be used without making it necessary to cut away the side frame to any greater extent than will just allow the axle boxes to play up and down readily. Fig. 2 shows a journal box with lid in place and Fig. 3 the same box with the lid removed, exposing the end-thrust bearing. This latter figure also affords a phantom view of one of the springs, showing their generous length.

I am of the opinion that, if conditions will permit, haulage locomotives ranging in size from ten tons upward should be provided with outside frames. Such an arrangement affords room for large electrical equipment, yet simultaneously renders the locomotive parts accessible. A large locomotive with inside frames, on the other hand, crowds the various parts together and does not give sufficient room for well-designed motors of liberal size.

Small locomotives, however, especially those that are used for gathering, should by all means be fitted with outside wheels. The gage of such machines is the same as for the larger ones operating in the same mine, but the necessary motor equipment is so much smaller that ample room for both motors and frames may be found between the wheels.

Why Outside-Wheel Locomotive Also Is Used

The reason for preferring outside-wheel locomotives is that in case of derailment they may be put back upon the track much more readily. Furthermore, they are much narrower than if the frames were placed outside the wheels. This affords more room for the trip rider to get around the locomotive in a narrow place and renders his work safer. An outside-wheel machine also may be used in many places where it would be necessary to clean up the track and gob before a locomotive fitted with inside wheels could be used.

Fig. 4 shows a late design of gathering locomotive. The cable reel is placed at the forward end and inside the frame, its top being flush with that of the locomotive. So placed it does not hinder the locomotive from going into low places and does not obstruct the motorman's view. The cable reel can be either mechanically-driven or provided with an independent motor and the cable can be arranged to spool from either end of the machine. A convenient and safe seat is provided for the trip rider with footrest and handrail. In this illustration the trolley poles are shown mounted upon outriggers. This arrangement is suited to extremely low trolley wire. In ordinary cases the trolley poles are mounted on top of the sand boxes, in which event the total width of the machine is practically the same as the width over the wheels.

Such a locomotive as this is readily accessible. For instance, the brakes are exposed and can be easily adjusted and the brake shoes may be renewed with little difficulty. There are no cable-reel, brake or suspension bars above the motors and consequently these may be reached by simply removing the locomotive cover plates.

Armorplate Not Suited to Small Machines

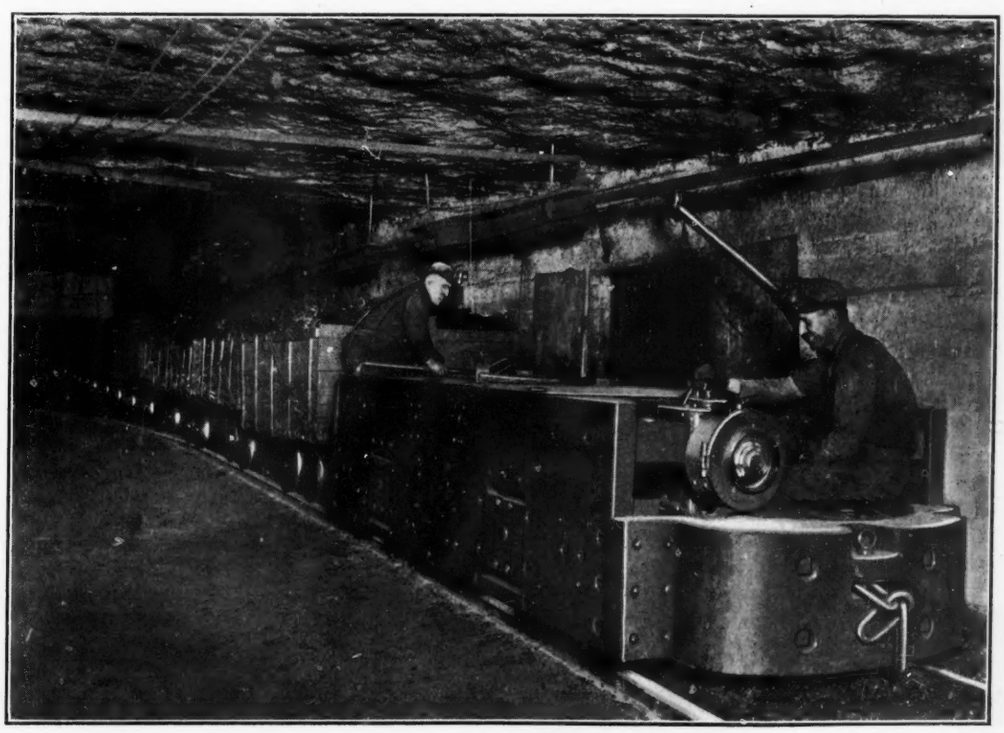
As shown in Fig. 4 the locomotive frame is built up of channel iron, riveted together, with steel castings forming the guides for the journal boxes. This makes an extremely light yet strong frame. Armorplate frames are not suitable for small outside-wheel locomotives. The majority of such small machines are equipped with cable reels or crabs, and armorplate frames make up too large a percentage of the total weight, so that the capacity and reliability of other parts would necessarily be sacrificed if a heavy side frame were used. With the channel-iron construction, however, the strength of frame is not lessened, as experience has shown that gathering locomotives of this construction will withstand almost any wreck.

One advantage possessed by this locomotive is that it is adapted to receive either crab or cable reel in the same space without altering its dimensions. Only a

FIG. 5

Electric Locomotive

Formerly the electric locomotive, like the steam locomotive of early days, was a complicated-looking machine, but, like the modern steam locomotive, it has been recast so that now it is outwardly a mere box with bumpers, a controller, a headlight and a trolley arm. Every part which is susceptible to dust and dirt is well covered and protected.



small amount of work is required to make the change. Fig. 5 shows a modern armorplate locomotive. The massiveness of the side frame is at once noticeable. By using journal boxes with a pair of coil springs as above described it is unnecessary to cut away the side frames and thus weaken them, yet springs of ample flexibility may be employed.

Why Overcasts Are Better Than Mine Doors

By W. E. Dickson
Du Bois, Pa.

A DOOR is one of the most costly as well as most dangerous items of mine equipment, yet this consideration seldom receives the thought that it deserves. Where it is considered necessary to install a permanent door the conditions should be carefully considered, and usually it will be found cheaper and safer not to build the door but to put in an overcast.

A permanent door involves much expenditure in addition to that for lumber. The wages of two men must be paid for its construction and erection. A trapper will have to be constantly employed to open and close it. A shelter hole must be constructed at the door and another hole also must be provided for a barrel of water, for all permanent doors should be so protected. The continual breaking and smashing of the door by trips involves a further expenditure for lumber and for the workmen who replace it.

A light should be provided at all doors. This involves the wiring of the light, the replacing of globes, and the employment of wire men who must spend a day, more or less, in installing it. Trolley wires must be guarded on both sides of the door, which means the use of more lumber and the employment of more labor. These boards often are knocked down by trolley poles and again the service of a high-class or highly-paid man is needed.

Where permanent doors are used an extra door should be placed that will have the same effect on the ventilation. This door, of course, should be a full trip length away. Heavy blasting or heavy caving often damages doors. The weighting of the roof, the movement of the sides or the heaving of the bottom will affect them also.

Not Only Expensive But Dangerous

Looking at the matter from a safety viewpoint we often find the door frame cuts the clearance, frequently to as little as 12 in. A brakeman or driver, knowing he has 30 in. clearance, forgets the door frame is in his way and accordingly at this point a man may be squeezed to death. The required shelter hole is not always provided, and an instance is recorded where a trapper stood back of his door and the heavy iron guard receiving the weight of the cars crushed him so severely that he died.

Should the boy neglect his work the motorman is in great risk of losing his life by running into the closed door. The cross bar over the door often is far below the uniform height of the roof and may easily dash a man's brains out. Doors have been known to take fire and cause serious damage. One at Delagua, Col., is thought to have been set on fire by the trapper and been the cause of a destructive fire in which many lives were lost.

Trappers, drivers and workmen leave doors fastened or thrown back and as a result that portion of the mine where the air is short-circuited may be endangered by an accumulation of gas, with a result that is not to be reckoned in dollars and cents but in humanity. It is not advisable to place doors at the foot of steep grades. Even automatic doors are dangerous where a man cannot control his trip, as these doors are not always positive in action.

There is always more or less leakage through a door and, as a result, much of the ventilating current may fail to sweep the working faces. Every mine foreman remembers the time when the inspector tried to measure the air at the last crosscut and found that, owing to an open door, the anemometer would not even move. "That's queer," he will say; "I usually get 12,000 cu.ft. of air here, a door must be open." Of course the door was open; it usually is open and often remains open all night until the fireboss finds it and ponders over whether to leave it open or close it before continuing with his inspection.

The penalty under the compensation schedule for neglect to dispense with the door certainly makes it a costly and most dubious "economy." Doors must be so hung that they will close themselves, must be strongly built, tightly sealed into the roof, and a second door that has the same effect on the ventilation is required.

For neglecting to comply with these specifications a charge of 1c. per $100 of payroll is the penalty provided. Under the rules of the compensation schedule shelter holes must be maintained at all permanent doors. A penalty of 6c. can be charged the operator not complying with this requirement. Doors must be whitened or enclosed lights maintained. A 6c. penalty is provided for non-compliance with the requirement that the trolley wire at doors be guarded on both sides.

Penalties Add to 31c. per $100 of Payroll

A clearance of 30 in. must be provided between the widest part of the motor or cars and the frame of the door or a twelve-cent charge can be made. When these charges are totaled we find that one door can create a maximum of 31c. per $100 payroll. When the total payroll of the mine is computed and this proportion deducted it will give some idea why a permanent door should not be placed, but even when conditions seem to warrant paying the penalty to save the first cost of an overcast it is generally more advisable to erect it.

The initial cost is greater, of course, but in the end the overcast will be found to have paid for itself in saving the many expenditures already enumerated. With the overcast the clearance can be made ample. The shelter hole and a hole for a barrel are unnecessary and by no possibility can an overcast be left open. A substantial overcast does not leak, and it enables the inspector to commend the foreman for the excellence of his ventilation equipment, which he cannot do where doors are used too liberally throughout his mine. The slogan of every mine should be "Safety, economy and large production." The elimination of doors and the erection of overcasts makes these three elements of good mining possible.

Chief Button, of the State Department of Mines of Pennsylvania, has notified all mine inspectors that more care must be exercised in supervising mines where open-flame lights are used. He says that all serious accidents or unusual occurrences must be reported immediately, and that inspectors must observe the rule that permission must be obtained before an inspector can leave his district save when he is called to aid another inspector. As a result of the reduction made in the appropriation for the department, strict economy is enjoined.

Precautions That Should Be Taken to Prevent Electrical Equipment from Starting Fires*

Short Circuit, Ground, Overload and Bad Contact Are Four Electrical Phenomena That Should Always Be Guarded Against—Although Electricity Is Credited with Being a Potent Cause of Fire, It Is Merely the Agent of the Great Fundamental Cause, Carelessness

By E. V. King†
Charleston, W. Va.

ELECTRICITY was credited in the United States with causing during 1918 (the last year for which statistics are completed) 15,691 fires, entailing a loss of $20,780,307. The destruction of property from this cause is increasing annually. It is believed that these figures are quite conservative, as the statistics compiled include only reported fires of known electrical origin. Surely, the loss is great enough to warrant the bestowal of careful consideration upon all electrical installations.

Of course, this enormous loss is not confined to coal-mining properties, but covers every class of risk employing electric current. We may rest assured, however, that coal-mining plants are bearing their share of the burden. I regret to say that upon inspection few standard electrical installations are found at coal-mining operations.

In considering the fire hazards of electrical installations there are four electrical phenomena against which it is highly desirable to guard. These are short circuit, ground, overload and bad contact. These four phenomena all owe their inherent danger to the heating effect that their occurrence entails. Their avoidance is the fundamental reason for the National Electrical Code, which is the standard requirement for electrical installations throughout the United States.

Danger from Starting and Stopping Surges

This code is not, as is generally assumed by the public, an arbitrary set of rules compiled by the underwriters alone, but is the result of the united efforts of a committee composed of representatives of the various insurance, electrical, architectural and allied interests of the country, and adopted as the "Regulations of the National Board of Fire Underwriters for Electrical Wiring." In all risks appraised by the various rating bureaus an additional charge is made in the insurance rates applying to that particular risk if the wiring does not conform with these requirements. Thus it may be seen that it is to the interest of the property owner to avoid defective installations, for he thereby not only safeguards his property from electrical fires but effects a considerable saving in his insurance cost as well.

One of the most common defects found around coal-mining plants, and probably one of the most difficult to remedy in many instances, is the connection of light and power circuits to grounded trolley systems. The chief hazard incurred in such systems arises from the variation in voltage which the starting and stopping of haulage motors and mining machines inevitably causes. Recognizing this fluctuation in the need for current the electrician is tempted and often does supply fuses of greater capacity than the circuit should carry, thus subjecting wires to much heavier loads than those for which they are intended. An accidental ground or short is then exceptionally dangerous on account of its severity. If such systems must be used, special care should be taken in their installation, and all wires should be run in conduit.

Reliance Should Not Be Placed on Solder

Open wiring is especially subject to abuse and requires constant attention to keep it in first-class condition. All wiring of this kind should be supported on approved insulators and the conductors separated not less than 2½ in. for potentials not exceeding 300, and 4 in. for voltages of 301 to 500. Rigid suspension along flat surfaces requires, under ordinary conditions, supports every 4½ ft. Wires crossing roof or floor timbers should be protected from mechanical injury by being installed in conduit within armored cable or upon running boards, and all open wiring on side walls should be protected for at least 7 ft. above the floor by a substantial boxing, which allows an air space of 1 in. around the conductors. This should be closed at the top, the wires leaving the box through bushed holes.

Joints not properly made present a serious hazard because of poor contact. All wires should be so spliced or joined as to be both mechanically and electrically secure without soldering. The joint should then be soldered to insure preservation, after which it should be covered with rubber and friction tape.

Service entrances to buildings are often neglected. All service wires entering a building, except those in conduit, should be separated at least 12 in. and the holes should be bushed with porcelain tubes slanted upward and inward. The wires should be supported on insulators attached to the building and drip loops provided. A service switch and fuse should be installed at the nearest accessible place to the point of entrance. These should be so arranged as to make it possible to cut the current entirely off the building.

Fuses are the safety valves of any electrical system. Strange to say, many electricians apparently do not realize this, for it is a common practice to omit fuses entirely, or to bridge a blown fuse with copper wire, solder, or anything that may be handy. With such protection, or rather the lack of it, a "short" or ground may cause serious consequences. Another quite common

*Paper entitled "Common Fire Hazards in Electrical Installations," presented before the Mine Electricians and Machanics Institute, Charleston, W. Va.

†Superintendent of West Virginia Inspection Bureau.

fault of this same kind is the use of "Edison" plug fuses on 250-volt and sometimes 500-volt systems. Fuses and bases of this type are designed only for a potential not exceeding 125 volts and should never be used for higher potentials.

Overloaded circuits are closely allied with fuse trouble; in fact most fuse abuses are caused by overloads, for when a fuse fails to hold, a heavier one is substituted or the old fuse bridged with wire. In many instances the load that the fuse will carry without melting may be beyond the safe carrying capacity of the wire.

Open-Knife Switch a Menace to Property

Open-knife switches are a constant hazard to both life and property and all such devices, except those installed on switchboards, should be inclosed and preferably should be of a type that may be operated without exposing the live parts to accidental contact. This type is known to the trade as an inclosed, externally-operated safety switch.

Starting rheostats are in many instances carelessly installed and in many cases are found mounted on combustible material. As such devices are a source of considerable heat, they should invariably be placed at least 1 ft. from combustible material, or separated therefrom by a non-combustible insulating base, such as slate or marble, somewhat larger than the rheostat itself.

Conduit systems are far superior to open wiring and, while more expensive to install, the cost of upkeep is considerably less. This type of construction is less likely to be tampered with than is open wiring and when properly installed affords a maximum of safety.

The chief shortcomings peculiar to electrical systems, aside from the general defects previously mentioned, are grounds and "shorts" arising from abrasion of the insulation which improper fittings cause. Only approved fittings designed for the purpose should be installed. Slightly less important is the grounding and bonding of the conduit system, in order that, should a ground or leak occur, no arc may be established between sections of the system and the ground and so that electrolysis cannot, by breaking down the walls of the conduit, pave the way for more serious trouble.

Dirty Oil in Oil Switches Causes Trouble

Oil switches cause much trouble and to my own personal knowledge have been the cause of several fires. Some of these accidents occur from the faulty construction of earlier devices of this type, but dirty oil in the cases usually is at fault. Care should be taken to see that these containers are kept at all times filled with clean oil to the proper level and that both cases and frames are properly grounded.

Lighting arresters often are improperly installed and little attention is paid to their grounding. Arresters should be attached to each wire entering or leaving a power station. They should be located in an accessible place away from combustible material and as near the point where the wires enter the building as is practicable. Ground wires should be not less than No. 6 B & S gage, and if artificial grounds are used, they should be located, if possible, below permanent moisture level and present not less than 4 sq.ft. of surface to the soil.

The indiscriminate use of common lamp cord is responsible for many fires. Such cord is designed for pendants only and has not sufficient insulation to withstand the severe usage to which it is subjected when employed for circuit extensions and portable purposes. An extension of this kind may have been used for five years without ever blowing a fuse. Nevertheless, it constitutes an ever-present potential hazard, and the older the installation, the more serious this danger is found to be.

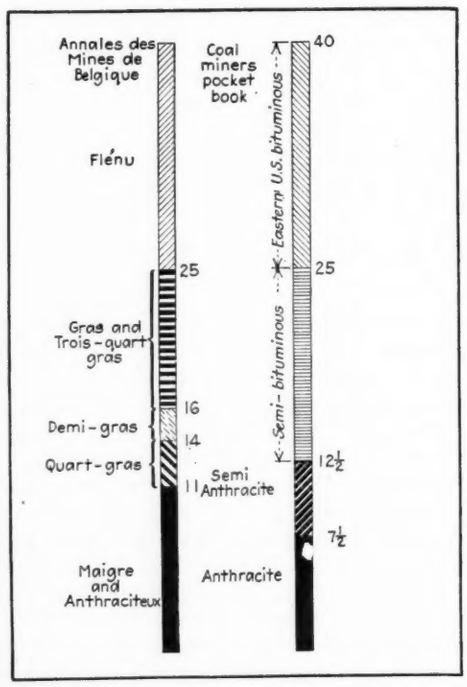
Although electricity is shown by statistics to be a leading cause of fire, an analysis of electrical fire causes reveals that more properly speaking it is simply the agent of that greatest of all fire hazards—carelessness.

How Belgian Coals Are Designated

FOUR types of coal are recognized by the Belgian Office des Charbons, namely: *Gras* and *trois-quart gras; demi-gras; quart-gras; maigres* and *anthraciteux.* The Mines Administration, however, divides the product into *flénu, gras, demi-gras* and *maigres.* From these two sources of information the following definitions of Belgian coal nomenclature may be adopted, says the *Annales des Mines de Belgique.* A rough interpretation into English of the words has been added, however, to the statement found in the *Annales.*

Rank of Coal	Translation	Percentage of Volatile Matter
Flénu	Name of town where the coal was found	Over 25
Gras (and ¾ gras)	Fat and ¾ fat	25 to 16
Demi-Gras	Half-fat	16 to 14
Quart Gras	Quarter-fat	14 to 11
Maigres and Anthraciteux	Lean and Anthracitic	Less than 11

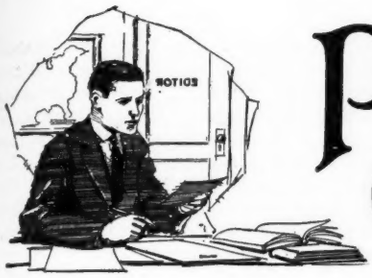
The illustration shows the relation between United States nomenclature and that in use in Belgium. Evidently all the coal of Belgium except the *flénu* coal



COMPARISON OF AMERICAN AND BELGIAN COAL NOMENCLATURE

The figures show percentages of volatile matter in the so-called pure coal substance. The Coal Miners' Pocket Book regards any coal having less than 3 per cent of volatile matter as not entitled to the name of anthracite, but no attention to this viewpoint is shown in the illustration.

is of higher rank than bituminous coal, the semi-bituminous coal of the United States corresponding to *gras, trois-quart gras* and *demi-gras* and covering some of the range in which *quart-gras* may be found.



Problems of Operating Men

Edited by James T. Beard

Roof Troubles Overcome By Working Smaller Areas

Troublesome Roof Requires a Greater Percentage of Pillar Coal Left to Be Taken Out in the Second Working. The Work Should Proceed in Small Sections or Areas

WORKING under troublesome roof becomes dangerous and much coal will be lost unless the effect of the roof pressure on the pillars is carefully watched and the work planned accordingly. The development of a mine must be determined by a careful study of all the conditions.

Success in mining coal depends on maintaining a sufficient pillar support, which must be proportioned to such conditions as the thickness and inclination of the seam, its character, depth of cover and nature of the overlying and underlying strata. Each of these elements must be carefully considered in determining the relative size of pillar and opening.

A good general rule to adopt is to take out one-third of the coal in the first working, leaving the remaining two-thirds as pillars to support the roof. When the rooms have been driven up to the limit, these large pillars can be cut out by machines, in alternate sections, leaving thin stumps of coal behind each cut and removing these stumps with a pick.

Inadequate Pillar Support Causes Squeeze and Roof Trouble

It can generally be assumed that the chief source of trouble, in mining coal successfully and economically, is the leaving of too small pillars and driving the openings too wide. This invariably brings on a squeeze that crushes the pillar coal, or at least throws too great a weight on the pillars, making them hard to mine and the work dangerous.

I cannot agree with the idea expressed by Richard Bowen, in his letter, *Coal Age*, May 5, p. 826, that it is better to take up bottom rather than break the roof. My experience is that the taking up of a soft bottom only increases the trouble, as the roof pressure causes the roadway to fill as quickly as the bottom is removed. I have found it better to brush the roof and leave the bottom undisturbed.

In additon to what I have already remarked, one thing I have found of the utmost importance when working under bad roof conditions, and that is to work out and finish small areas at a time. Let me suggest the plan of driving up a number of, say ten to fifteen rooms and drawing back the pillars, using every precaution and means to induce a good fall of roof in this section. If the roof fails to break and fall it should be blasted down at points that will start a heavy fall in the waste.

Taking out all the coal and withdrawing all timber is a good plan and necessary to success. By following this method of working out small areas at a time, there is seldom any surface damage resulting from the extraction of the coal, provided the seam is overlaid with at least 200 feet of solid strata.

C. McManiman.

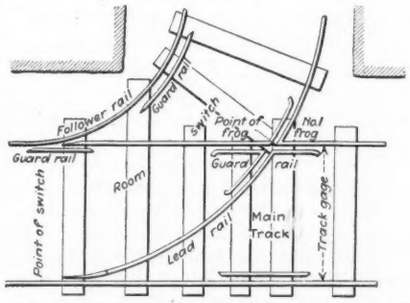
Black Lake, Quebec, Canada.

Guardrails Prevent Derailment

Trouble in the derailment of cars at room switches can often be overcome by spiking pieces of guardrails at points opposite to the switch and frog points.

BEING a trackman, I was naturally interested in the inquiry regarding the derailment of cars, which was thought to be due to not using the proper size or number of frog when laying the switch. While I agree fully with what the editor has said in reply to this correspondence, I would like to add a few words on guardrails and arrangement of trackties.

For some time. we have had trouble with cars being derailed at switches leading into the rooms. A car wheel would leave the track at the switch point next to the follower rail, where the track gage was too wide for a distance of about a foot.



ROOM SWITCH SHOWING GUARDRAILS AND NO. 1 RAIL FROG

In order to overcome this trouble, I spiked a short guardrail on the inside of the straight rail and spanning the distance, which had the effect of steadying the movement of the car over the switch. When a car having a slightly narrow gage once dropped in to the space between the straight point and the follower rail the trouble would start and other cars would do the same.

Our principal trouble has been, as I said, at the switch point. We have had scarcely any trouble with cars getting off the track at the frog and I have not as yet used a guardrail opposite to the frog, although this is shown in my sketch as I know it is common practice to spike a gardrail to the ties at that point to help the cars pass over the frog.

Practical Points in Laying a Room Switch

In this locality, it has been the rule to use frogs made by the blacksmith. These are ordinary rail frogs such as shown in the sketch. The straight rail and the curved rail leading into the room are brought together at a point to form the frog.

When laying a switch, great pains should be taken to lay the ties under the frog in such a manner as to form a solid bed that will hold the rails firmly in place when they are spiked to the ties. My habit is to use three good ties under the frog and I often spike these together using 30-penny wire nails for that purpose.

This arrangement affords a good opportunity to lay in the lead rail and the curved rail beyond the frog, and bend them so that each will have the same curvature or radius. For the room switches we are using a 9-ft. lead rail in mule haulage and a 20-ft. lead rail for the motor switches.

Let me say, in closing, that if this mine forman will try laying a switch in this manner, I believe he will have little trouble with cars getting off the track if properly handled.

Linton, Ind. Trackman.

Pillar Above Pillar

Successful working of two seams sixty feet apart, where the upper pillars were set ten feet to one side of the lower pillars.

WHETHER two seams of coal forty feet apart should be worked pillar over pillar or not is a question discussed in *Coal Age*, May 12, p. 865, and one is not surprised to find that the opinions expressed favored the setting of the pillars in the lower seam so

as to afford good support to those in the seam above.

Referring to the original question, which appeared in the issue for March 10, p. 455, it seems that there must have been some reason for the suggestion then made, of driving the entries and rooms, in the upper seam, vertically over the pillars in the seam below. It would be interesting to hear that side of the question.

Development in Upper Seam Made To Project Ten Feet

One modern operation that I knew worked a large area of upper and lower Freeport coal, in Indiana County, Pa., where these two seams were separated by sixty feet of strata and the main slope entry had a 3 per cent grade.

Although, in that case also, the company favored the "pillar-above-pillar" plan of working, it was decided to move the development in the upper seam ten feet to the right. This was done for the purpose of enabling the engineer to show both mines, in their exact development, on a single map. In all, three maps were made, a separate map for each seam and a third map combining the workings of both seams, the workings in the upper seam being superimposed on those in the lower or underlying seam.

In the combined map, the lower workings were shown in black and the upper in red, while on the tracings the two colors were black and brick, the latter being easily distinguished on the blueprint. The upper development was always kept in advance of that below, and both seams were successfully mined. George Edwards.

Pikeville, Ky.

ANOTHER LETTER

REFERRING to the question of working two seams of coal 40 ft. apart, asked in *Coal Age*, May 12, p. 865, allow me to say that the only practicable method to employ is to drive entries under entries, rooms under rooms and pillars under pillars, each of these in the lower seam being vertically under the same in the upper seam.

It is my experience that if an opening in a lower seam is permitted to extend beneath a pillar in an upper seam, the two seams being separated by a comparatively few feet of strata, there is sure to result a creep or squeeze. If the intervening strata are pliable, the roof in the lower seam will bend under the weight of the pillar and overburden above, and no timber will avail to hold the roof.

Headings and Rooms Driven on Same Courses

When headings are driven in the two seams, the engineer should see that both headings are laid out on the same course and are vertically one below the other. The same rule applies to the driving of rooms, which should be turned off on the same angle and at equal distances apart.

If the work is properly planned and laid out by a competent engineer, so that the entry pillars and room pillars in the lower seam underlie those in the seam above, there will be little trouble. When this is not done, however, there is sure to follow heavy caves that will cut off much of the coal in the lower seam, and may make it impossible to mine either of the two seams over the same area.

But, if properly conducted, the pillars in the upper seam can be drawn in advance of those below, and this will generally be accomplished without any serious movement resulting in the strata. The success of the proposition will always depend on the experience and judgment of the operator and the precautions taken in the extraction of the coal in both seams. C. McManiman.

Black Lake, Quebec, Canada.

Arching of Roof Prevents Damage to Surface

Roof falls in a seam of moderate thickness are followed by the arching of the overlying strata, which generally prevents the break extending to the surface.

KINDLY permit me to offer a few comments in regard to the plan presented in the letter of T. K., *Coal Age*, May 5, p. 825, with reference to recovering the largest amount of coal from a tract of land 300 acres in extent where the operator owns the coal rights only.

It is stated that the coal lies at a depth varying from 250 to 300 ft.; but what is of the most importance is not given, namely, the kind of roof overlying the coal and thickness of the seam. If this coal is of moderate thickness, say not exceeding 5 or 6 ft. and has a good slate or stone roof reaching to within 50 ft. of the surface there should be no trouble in its extraction by the room-and-pillar system.

With proper care in working out the coal, such a depth of cover will furnish ample protection against damage to the surface, provided the coal is not too thick. The plan should be to rob out a small acreage at a time and allow the roof to fall, so that the overburden will settle down solid on the waste.

Height of Fall Depends Much on Thickness of Seam

My experience is that a roof fall in a miner's place will seldom, if ever, extend to a height greater than 100 ft. before it arches over and is self-supporting. The less the thickness of the coal, the less will be the height to which the roof will fall before arching takes place. The fallen rock always takes up more room than it did in the solid and soon completely fills the space where the coal was taken out.

Now, if the plan is adopted of taking out every other pillar, as suggested in the letter to which I referred, it is my belief this will start a squeeze that may soon make it necessary to abandon that section of the mine. I have seen this happen more than once.

The effect of taking out every other pillar is to throw a great weight on the pillars that remain. One place after another will close and the miner soon be forced to quit. Finally, the creep or squeeze will reach over on to the solid work and greatly increase the cost for timbering, moving slate and keeping the roads open. Much coal will be lost and some track material.

Plans Building Cribs as the Coal Is Extracted

For a greater thickness of coal overlaid with a shallow stone or slate roof, I believe I have worked out a good plan of extraction, which I will describe. But, first, let me say that it is always important to know the character and thickness of the rock overlying a coal seam. This must be ascertained, by drilling holes from the surface, before attempting to take out the coal.

Briefly stated, my plan is to utilize the waste rock and shale, by using it for filling in cribs built of timber or any waste lumber one may chance to have around. These cribs are built in each room, at distances of about 80 ft. apart, and filled with the refuse of the mine.

Where rough lumber is used for that purpose the forms can be made 4 ft. wide and about 20 ft. long. Enough cement should be mixed with the waste to form a solid concrete pillar, which should be carried up to the roof and packed solid. There would be about five of these concrete pillars in the length of a 400-ft. room. As quickly as the concrete dries, the lumber can be stripped off the pillars and used again and again.

These concrete pillars will enable all the coal pillars to be taken out. The roof falls that occur will be small and in no case extend high enough to damage the surface. I believe such a plan will enable the extraction of all the coal and hope to hear from others.

Thorpe, W. Va. G. W. Breeden.

Guarding Against Roof Slips

Treacherous roof conditions overcome by special precautions to detect danger and safeguard the miner

WHEN reading the article of Richard Bowe, *Coal Age*, May 5, p. 826, entitled "Working Under Troublesome Roof," I am reminded of a condition that confronted me, a few years ago, in a section of a mine where the roof was full of slips.

The condition was among the most treacherous that I have ever experienced and to get it worked at a time when the coal business was prospering was a problem. At last, that particular section became so dangerous that we were forced to abandon some very good coal until a plan could be devised that would promise greater safety.

The roof, which was sandstone, contained many slips that were of such a nature that it was almost impossible to detect them by ordinary means. The assistant bosses would go over each place with a sharp iron that was a

little larger than the old-time lamp picker. With these they would dig into the roof in an effort to find a flaw or slip that would cause the roof to fall without giving any previous warning.

SITUATION CAREFULLY STUDIED

Studying the situation for a time, we determined to make a special effort to mine this coal with safety. Our plan was to employ the best miners possible and put in charge a foreman who knew the importance of doing a thing right. Each place was to be adequately posted, as we knew by experience that the ordinary miner will not set the needed posts, unless carefully watched, and the frequent roof falls sure to follow would mean a low tonnage in that section.

With this determination and the cooperation of the men, we were finally able to win all of the coal in that section and do it safely and economically. There was nothing new in the methods we adopted, which consisted in simply carrying out to the letter a well-known system of working under bad roof and taking precautions for safety.

SAFETY MEASURES ADOPTED IN EVERY BRANCH OF THE WORK

All rooms were driven 20 ft. in width. At the face of each room the posts were set with special care to have them strong. The caps above the posts were properly balanced. A regular system of timbering was followed, the posts being set not more than 4 ft. apart and kept up to the face of the coal.

The cutters were paid by the day, and required to reset all posts drawn to permit the machine to pass. They were compelled to do this for their own safety. For the safety of drivers and others, posts were set along each side of the track, in each room, and staggered. Each of these posts had a 5-ft. cap that projected over the road and made the roof entirely safe above the track.

In order to prevent posts being knocked out by a blast, we adopted the scheme of setting an extra post about four inches in front of each post, at the face. As a general rule, this afforded the needed protection for the regular post, which was seldom discharged by a shot. GEORGE EDWARDS.

Pikeville, Ky.

Automatic Winding Spool for Use in Blasting Coal

Use of automatic winding spools in blasting coal prevents injury to firing cable, which is often the cause of accident due to premuature blast.

SOME time since I remember suggesting the same plan of firing shots as that mentioned by John H. Wiley, in his letter on "Precautions in Shotfiring," *Coal Age*, May 19, p. 912. Such a device is an effective means of preventing accidents in blasting, and I hope its mention now means a stirring drive for safety.

Special attention is drawn to the use of the shotfiring cable, in the Bituminous Mine Law of this state, Art. 11, Sec. 8, Rule 88. Also, Rules 93-95 prescribe using greater care and caution in the firing of shots by electricity.

The system of firing shots prevailing in many of our mines is hazardous. When the shotfirer has finished stemming a hole, he proceeds at once to connect the lead wires with the firing cable that he has dragged behind him when coming into the place.

NEED OF PROTECTING THE CABLE IN ELECTRIC FIRING

Too often, the cable in use is badly damaged by having been dragged in this manner about the mine. Its insulation may be worn thin or entirely gone in places and when the shotfirer makes the connection with the shot he has prepared, the cable is, perhaps, in contact with a live wire or a charged rail whereby the shot will be exploded at once.

Again, assuming that the man goes back to the battery, after connecting the cable with the shot to be fired, it may happen that some portion of the cable is lying in a pool of water. In that case, the force of the battery is much weakened, the current being partly short-circuited at the water. As a result there is apt to be a misfire, which is a danger in itself.

DANGER TO THE SHOTFIRER

Under these conditions, it is often a wonder if the shotfirer escapes having his head blown off by a premature blast or losing his eyesight or being otherwise injured or maimed. Calm reflection convinces anyone that the suggestion of using an automatic spool by which the cable would be kept wound up as it is carried from place to place and only unwound as the shotfirer retires to his battery, after having connected the cable with the shot to be fired.

One source of trouble when a cable is dragged around the mine and which is only eliminated when it is wound on a spool is the kinking of the wire. A bad kink in a cable may cause a shot to misfire and much time is then lost both to the shotfirer and others. For example, suppose the shotfirer has made everything ready and given the required warning to all men working in that vicinity, which may include a driver, two timbermen, perhaps two trackmen and the miners in adjoining places.

MUCH LOSS OF TIME IS CAUSED BY A SHOT MISSING FIRE

All of these men must lose much time if the shot misfires. It will not be safe for them to return to their work, until the shotfirer has found the trouble and the shot has been fired. That means expense to the company and danger to the men.

At this time when safety measures are being applied in every industry, let us do our share in making more safe the work of shotfiring in mines. Where safety devices have been invented and improved methods of performing the work established it shows the necessity of revising or amending our mining laws so as to cover these points.

Gans, Pa. R. W. LIGHTBURN.

Inquiries Of General Interest

Locomotive Pulling vs. Pushing Trip

Tractive Effort of Locomotive, Depending on Its Weight and Adhesion to the Rails, Is the Same Whether Pushing or Pulling the Trip, But Risk of Accident Is Less When the Locomotive Goes Ahead

OBSERVING how often information of value is given to inquirers, under the caption "Problems of Operating Men," kindly allow me to present a problem in locomotive hauling. The information I desire particularly is, whether a locomotive will push a trip of loaded cars as well as it will pull the same trip.

In other words, can a locomotive be operated as successfully behind the trip as at the head end? Will there not be a greater chance of a wreck occurring when the locomotive is pushing the trip, especially when rounding a curve?

Owing to the conditions in our equipment, there would be a considerable advantage gained if the locomotive can push a trip of loaded cars equally well and incur no greater risk than when hauling the trip. The company is installing an operation capable of producing 2,400 tons of coal in an eight-hour run. We are mining a 5-ft. seam of coal through a slope opening.

On the surface a modern steel tipple has been erected, while at the bottom of the slope and on a level with the seam, a one-car rotary dump and mechanical feeder have been installed. A scraper-conveyor inclined at an angle of 45 deg. reaches from the slope bottom to the tipple, the entire equipment being a Link-Belt construction.

The rotary dump will allow a motor to pass through it, but it will be readily seen that there will be a great advantage gained if the locomotive can push

the cars onto the mechanical feeder, instead of pulling them there and then having to pass through the rotary dump to get out of the way and allow the cars to be dumped.

If there is too much risk in operating a locomotive as a pusher on a loaded trip, or if this arrangement will not work successfully, it will be necessary to devise some plan of pulling the trip that will not involve the necessity for the locomotive to pass through the rotary dump. We shall be glad to have the opinion of *Coal Age* and its practical readers regarding this matter.

S. A. BOWES,
Mine Foreman, Himler Coal Co.
Kermit, W. Va.

The proper place for a locomotive, when hauling coal underground, is at the head of the trip. There are many instances where, in order to avoid loss of time, or the necessity for providing extra trackroom to permit the locomotive to pass from one end of the trip to the other, the system has been adopted of hauling the loaded trip out of the mine and pushing the empties back into the mine, or *vice versa*, pushing the loads and pulling the empties.

When a locomotive is pushing a trip, it is clear, the engineer cannot see either the condition of the track ahead or the near approach to danger. A switch may be set wrong, or one or more cars may be derailed and the entire trip wrecked before the motorman is apprised of any trouble. The danger is much increased when the trip is rounding a curve. If the locomotive is to be operated as a pusher for either the loaded or the empty trip, it will generally be better to push the loads and pull the empties, instead of reversing this order.

There is less danger of a loaded car jumping the track than when the car is empty. Owing to the uncertainty in the mind of the motorman and his inability to perceive any danger ahead when pushing a trip, the plan is often adopted of placing a trip-rider at the head end, whose duty would be to signal the motorman when anything is wrong. This plan is, of course, ineffective when rounding a curve, or where a long trip meets a sudden change in grade that obstructs the view and makes it impossible to see any signal given by the trip-rider.

For these reasons, we recommend pulling all trips. If it is possible to establish a downgrade approaching the mechanical feeder, the locomotive can be switched off at the point where it would enter the feeder, and the loaded cars run onto the feeder by gravity. If this is impracticable it may be possible to switch off the locomotive and run it to the rear of the trip so as to push the loads onto the feeder. This would, of course, consume a little time in switching, which should be avoided, if possible. We shall be glad to receive suggestions from our practical readers, who are generally able to find some way out of all difficulties.

Examination Questions Answered

Bituminous (Pa.) Mine Foremen's Examination

QUESTION—*If you had a ditch 2 ft. wide and 2 ft. deep, running full of water with a velocity of 15 ft. per sec., how many gallons of water is passing per minute?*

ANSWER—The sectional area of the ditch is $2 \times 2 = 4$ sq.ft.; and the velocity of the water $60 \times 15 = 900$ ft. per min. Taking this as the average velocity, the quantity of water flowing in the ditch is $(900 \times 4 \times 1{,}728) \div 231 = 26{,}930$ gal. per min., nearly.

QUESTION—*In case a workman is in contact with a live electric wire, how would you release him? If he is rendered unconscious, how would you proceed to revive him?*

ANSWER—Cut off the current by a near-by switch if that is where it can be reached at once. Otherwise, cut the wire on the power side of the victim, holding the ax in gloved hands or wrapped with paper or a dry garment and standing on dry wood, if possible. If an iron bar is at hand, the current may be partially short-circuited by throwing the bar across the wire on the power side of the victim. Then, standing on dry wood attempt to pull or push the victim from the wire, using a dry garment for protection as far as possible.

This being done, if the victim is unconscious, send for a doctor, remove him to a safe place and pure air, keeping him warm and apply artificial respiration in the usual manner.

QUESTION—*What precautions would you enforce to prevent accidents from mine cars and locomotives?*

ANSWER—Keep all tracks and rolling stock in good condition and the roads well timbered. Employ careful drivers and motormen. Establish a good system of handling and distributing the cars. Enforce strict rules and regulations forbidding men to travel main haulage roads or ride on trips passing in and out of the mine. Maintain a good signal system and provide shelter holes on roads where men must travel. See that safety blocks are used at the head of all slopes and a safety dog or dragbar attached to the rear of every trip. Instruct all miners to block their cars so that they will not run out on the road.

QUESTION—*In a mine giving off 2,250 cu.ft of marsh gas per minute, the volume of air entering the mine being 70,000 cu.ft. per min., what is the percentage of gas in the air current at the outlet?*

ANSWER—Disregarding any change of volume, owing to the temperature of the mine being greater or less than that of the intake air, the volume of air and gas returning from the mine is $70{,}000 + 2{,}250 = 72{,}250$ cu.ft. per min. The percentage of gas at the discharge opening in this case, is, therefore $(2{,}250 \times 100) \div 72{,}250 = 3.1$ per cent.

QUESTION—*In the event of a serious mine explosion occurring in the mine, what immediate and successive steps should be taken to rescue the survivors and safeguard the rescuers, and what dangers are likely to be encountered?*

ANSWER—Call for volunteers; dispatch messengers for doctors and rescue appliances, provided there is no organized and equipped rescue team at the mine; instruct the firebosses to examine the ventilating equipment and start the work of making any necessary repairs to insure a good air current in the mine; examine the hoisting equipment at the downcast shaft to see that it is safe for lowering the men. In the meantime, have men collecting all needed material, such as props, caps, brattice boards, canvas, nails and tools, in readiness for the rescuers.

Now, select from the volunteers those who are most competent and familiar with the mine and organize them in three parties, each having a competent head or leader. Equip these men with safety lamps. If breathing apparatus is available, the men wearing the apparatus should be the first to enter the mine and proceed to ascertain its condition. It is necessary to enter the downcast or intake and proceed with the air. Following the first party, the second party should be equipped with the necessary tools for making needed repairs to doors, stoppings and air bridges, in order to restore the ventilating current as they proceed. The third party is charged with the duty of carrying the supplies into the mine and lending whatever assistance is required to enable the speedy restoration of the air current and rescue any possible survivors as they are found. These should be taken to a place where they will have good air and every effort made to revive them by giving first-aid treatment.

The dangers likely to be encountered are explosive or poisonous gases, and falling roof. It is possible to meet with bodies of firedamp and constant tests must be made to ascertain the condition of the mine air. Caged mice or birds should be carried as a means of giving warning of the presence of afterdamp. Fire in the mine may prove an added danger.

New York City Public Utilities Consumed Seven Million Tons of Coal in 1920

NEARLY two million net tons of coal and coke were consumed in the manufacture of gas by the various gas companies in Greater New York in 1920, according to reports recently filed with the Public Service Commission. In addition the gas companies used in the manufacture of gas 25,782,931 gallons of water-gas tar and 233,146,571 gallons of gas oil.

The amount of coal and coke used by the individual companies is shown in the following tabulation, in net tons:

	Boiler Fuel	Gas Coal, Carbonized	Generator Fuel	Under Retorts Coke
Consolidated Gas Co....	16,906 Coal 10,543 Coke	18,156	106,029 Coal 36,071 Coke	5,654
Astoria Light, Heat & Power Co.....	37,742	486,771	136,464 C & C	59,112
Amsterdam Gas Co.....	24,149 C & C		123,693 C & C	
N. Y. Mutual Gas Light Co.....	6,550 Coal 472 Coke		39,683 Coal 10,546 Coke	
Standard Gas Light Co..	8,099 C & C		46,519 C & C	
Central Union Gas Co..	9,148 C & C	81,349	48,633 C & C	7,362
New York & Queens Gas Co.....	2,170 Steam C 792 Gas C.		8,577	
Brooklyn Borough Gas Co.....	3,725		14,570	
Kings County Lighting Co.....	22,046		30,494	
Brooklyn Union Gas Co.	75,605		356,181 C & C	
Bronx Borough Gas & Electric Co.....	10,427		4,552	
New York & Richmond Gas Co.....	8,011		12,457	
Queens Borough Gas & Electric Co.....	4,185		10,778	
	238,570	586,276	985,247	72,128

The electric lighting companies operating in the greater city consumed more than 5,000,000 net tons of coal in generating electricity during the year, as shown in the following table:

New York & Queens Electric Light & Power Co.....	1,990	Bituminous
	4,989	Anthracite
New York Edison.....	1,036,733	
United Electric Light Co.....	411,697	
Flatbush Gas Co.....	28,547	Anthracite
	1,380	Bituminous
Brooklyn Edison Co.....	5,886	Anthracite
	496,846	Bituminous
Queens Borough Gas & Electric Co.....	170,555	
Richmond Light & R.R. Co.....	46,630	
Total.....	5,201,883	

During the year three of the companies made nearly half a million tons of coke, of which they used 288,976 tons and sold 110,093 tons. The amount made, used and sold by the individual companies follows:

	Made Tons	Used Tons	Sold Tons
Astoria Light & Power Co.....	342,607	237,238	103,996
Central Union Gas Co.....	64,406	51,638	2,303
Consolidated Gas Co.....	12,452	.....	3,894
Totals.....	419,465	288,976	110,093

Putting Foreigners Out in Indiana Region

EIGHT hundred miner vigilantes, voicing a protest against the employment of foreigners in coal fields in Gibson and Pike Counties, Indiana, forced 150 or more men to leave the region on June 11 and 12. Most of the vigilantes were armed. No widespread difficulty is expected.

Francisco, a town of approximately 500 inhabitants, eight miles east of Princeton, Ind., was the scene of most of the disturbance. The employees imported by W. E. Cox, superintendent for the Ayrshire District Collieries Co., were compelled to leave and told never to return. Mr. Cox and his family, despite the fact that Mr. Cox is an American, were similarly treated. In all nearly a score were forced to leave Francisco.

One hundred foreigners employed in building a railroad from the George A. Enos Coal Co.'s strip mines, north of Oakland City, to the Southern railroad station at that place, also left. Thirty automobile loads of vigilantes visited the region, and the railroad station at Oakland City was jammed, the foreigners scattering in all directions. Departures from other localities than Oakland City and Francisco also are reported.

In the Francisco region the warned workers who had automobiles went in them to Princeton. Others walked and all spent the latter part of the night in a Princeton hotel. Most of them continued their journey away from that region when daylight came and all were expected to be gone in a few hours.

Twenty ex-soldiers and state militiamen, most of them in uniform and all armed with U. S. Army rifles, under direction of Sheriff Flowers, are guarding the Buckskin coal mine in the southeastern part of Gibson County. The men have been given instructions to "shoot to kill" in event of an outbreak. The men were deputized as a precautionary measure against a possible outbreak when many Austrians, driven from a railway construction camp at Oakland City by a mob, began filtering back into the city.

Many of the Austrians who returned told pitiful stories of alleged thefts of money, clothing and jewelry in addition to mistreatment at the hands of the mob which visited their bunkhouse late at night, June 11. Many of the men said they were beaten and forced to flee scantily clad, leaving money and valuables behind.

Recent reports are to the effect that, order being restored, the aliens are returning and also W. E. Cox, their superintendent.

British Mines That Did Not Cease Working

IT IS a mistake to suppose that all the miners of Great Britain went out on strike. There is one part of Scotland where they had neither the inclination nor the intention to "down tools," and as every man there was of the same mind and the nearest strikers were some one hundred and thirty miles away, these colliers made good wages while others were idle. They belong to the pits situated at Brora, in the rocky wilds of Sutherlandshire in the extreme north of Scotland. There all the mines "carried on" as usual, and orders for fuel from the south were received, and "trucked away" as fast as the single line of railroad could carry them.

The coal is in the Oolite formation and was worked at Brora as far back as 1574. One pit was sunk a century ago, and is some 300 feet deep. It is still developing seams which are about four feet thick. In 1872 mining operations were begun on a larger scale, and they have continued since, giving work to the one thousand and more men forming the population of this out-of-the-way townlet. Brora is at present the only instance of coal having been found and worked north of the Midlands of Scotland. Arrangements are now being made to extend the workings. Brora is on the east or North Sea side of the County of Sutherland on the north side of Dornock Firth.

Philadelphia Section, American Institute of Mining Engineers, Is Organized

FORTY members of the American Institute of Mining and Metallurgical Engineers residing in or within fifty miles of Philadelphia met at the Engineers' Club in Philadelphia on the evening of May 16, the semi-centennial of the founding of the Institute on May 16, 1871, at Wilkes-Barre, Pa., and organized the Philadelphia section of the institute.

There were present two of the three surviving founder members of the original body, Willard P. Ward, and Dr. Henry S. Drinker. E. C. Pechin, the third, in a letter expressed much regret at not being able to attend.

The organization of the section had been duly authorized by the Board of Directors, following a petition signed and presented by twenty-nine local members. By-laws were adopted, and an organization effected by the election of an Executive Committee composed of Guillaem Aersten, H. M. Chance, G. H. Clamer, Henry S. Drinker, F. Lynwood Garrison, E. W. Parker, A. A. Stevenson, L. H. Taylor, Jr., S. D. Warriner and Morris Williams.

This committee elected the following officers for the first year: Chairman, Dr. Henry S. Drinker; vice-chairmen, H. M. Chance, A. A. Stevenson, S. D. Warriner; secretary-treasurer, F. Lynwood Garrison. Mr. Ward was elected an honorary member of the Philadelphia section.

C. L. Colburn Takes Up National Safety Work

C. LORIMER COLBURN, who on April 1 was assigned to the co-operative work between the U. S. Bureau of Mines and the National Safety Council, was graduated at the Colorado School of Mines in 1907 with the degree of Mining Engineer. After spending a year in the mines of Colorado Mr. Colburn went to Luning, Nev., as engineer for the Lodi Mines Co. Later he returned to Denver and formed a partnership with C. A. Allen under the firm name of Allen & Colburn, mining engineers. The firm was engaged principally in mine surveying and mine examination. In 1912 Mr. Colburn joined the engineering staff of the Butte & Superior Mining Co., Butte, Mont. Later he was made manager of the Butte-Duluth Copper Co. In 1914 Mr. Colburn returned to Denver and served as manager of the Cumbre Mining Co., operating leases on the Country Boy and Juniata mines at Breckenridge, Col., carrying on exploration work in Nevada and Arizona.

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C. LORIMER COLBURN

In 1918 Mr. Colburn joined the staff of the U. S. Bureau of Mines and soon afterward entered the army, receiving the commission of captain of engineers. After receiving training at Camp Humphreys, Va., he was assigned to the 140th Engineers. After the signing of the armistice he re-entered the employ of the U. S. Bureau of Mines as metal mining engineer. Later he was made assistant chief mining engineer, serving under George S. Rice.

Mr. Colburn served for two years as secretary of the Colorado local section of the American Institute of Mining Engineers and one year as secretary of the Washington section of the American Institute of Mining and Metallurgical Engineers. Mr. Colburn made a study of underground loading devices and has written a bulletin on this subject which is now being published by the U. S. Bureau of Mines.

Two Undesirable Aliens to Be Deported

INSPECTORS O'Brien and Barnes of the Department of Labor, with headquarters at Pittsburgh, were in Raleigh County, West Virginia, during the week ending June 11 with deportation papers for Tony Sizzaro and Mike Ruffine, Italians connected with the shooting up of the mines of the E. E. White Coal Co. in November, 1917. Sizzaro confessed in court months ago and served a sentence of one year at the West Virginia State Penitentiary, and Ruffine was under indictment in connection with the same trouble until June 1, when the state dismissed its indictments so as to let the government take charge of Ruffine. The inspectors and the two Italians left for Ellis Island immediately after the two men were found. Both men were members of the United Mine Workers of America and that organization spent many months in Washington defending these and another Italian and using every effort to bring about a stay in proceedings.

Program Being Prepared for Wilkes-Barre Meet of American Mining Institute

GREAT preparations are being made for the fiftieth anniversary of the American Institute of Mining and Metallurgical Engineers which will be held at Wilkes-Barre, where the first meeting of the institute was held almost half a century ago. The dates of the meeting will be Sept. 12-15. Those who would like to stay and make a further inquiry into any matter that may attract their attention will be given the opportunity when the meeting is at an end. Sixteen committees have been appointed, the General Executive Committee, composed of the chairmen of all the other committees, and committees on finance, railroad transportation, automobile transportation, hotels, receptions, excursions, entertainment, paper and sessions, printing and publicity, banquet, ladies, and four committees to have charge of entertainment at the sections visited—Carbon County, Hazleton, Lackawanna County and Schuylkill County. The program is as follows:

Monday. — Morning: registration; afternoon: technical sessions; evening: entertainment.

Tuesday. — All-day excursion through anthracite region by automobile; lunch en route; visiting mines, strippings, breakers, etc.; night: technical session or entertainment.

Wednesday. — Morning: technical session and lunch; afternoon: excursion through Wyoming Valley; night: subscription dinner, Wilkes-Barre.

Thursday.—Morning: technical session; afternoon: visits to mines, special industries or shops.

The ladies' program will be as follows:

Monday — Afternoon: drive through Wyoming Valley; evening: entertainment.

Tuesday.—Excursion through anthracite region.

Wednesday. — Lunch and meeting of ladies' auxiliary; evening: subscription dinner.

Thursday.—Morning: visits to lace and silk mills, Wilkes-Barre, Pa.

R. V. Norris is chairman of the general executive committee.

Brennan Leads Northern Anthracite Field

UNOFFICIAL returns show that William Brennan, of North Scranton, a member of the grievance committee of the Glen Alden Coal Co. collieries and for many years insurgent to the union administration forces in the Scranton district, has been elected president of that district. The count will not be officially announced until the district convention at Wilkes-Barre, July 18, when the names of all the successful candidates will be read.

Movement of Coal Through New York Barge Canal Doubles

CHARLES L. CADLE, State Superintendent of Public Works of New York, reports increased use of the barge canal for shipment of coal. In the first five weeks of navigation this year there was shipped 18,720 tons of anthracite coal, which is more than double the amount shipped during the corresponding period of last year. Companies interested in sending coal from New York into Canada and as far north as Quebec find the canal, Mr. Cadle said, a great convenience. The line of boats traversing the waterways from New York and those handling the business on the northern routes have added to the tonnage of coal this season, he declared.

Why the Wholesalers Are Fighting

Five Reasons Submitted to the U. S. Senate by George H. Cushing Why Opposition Is Offered to the Frelinghuysen Coal Industry Stabilization Act

FIRST—In forty-eight months we have not had forty-eight days in which we were free from attack and which we could devote to a study of the needs of the coal trade. Yet we are condemned because we have not worked out a program.

Second—Other industries offered to supply voluntarily all information which the government wanted. Their offer was accepted. The charts now on the walls of the Senate Chamber show that the government has all needed information about coal. The coal industry has offered to continue to supply and to amplify that data. This offer was rejected.

We thus face two facts: (a) The charge is made by our government that while all other industries can be depended upon to tell the truth, the coal men must be compelled by law; and (b) that, having the information but the bill being urged for passage, it is regulation instead of information that is desired.

Third—The Senate last week voted to regulate the packers. This week it is asked to regulate coal. Next week it will be asked to regulate maternity. In these three bills it is proposed that the government shall become responsible for private conduct—to become a benevolent despotism. Such governments may be excellent on theory, but in practice they do not survive the death of the benevolent despot.

Fourth—We have said that regulation of the carriers and public utilities suggested regulation of coal; that to regulate coal must bring soon the regulation of the wages of miners and the price of steel rails, copper wire, timber, cement and the machinery used in coal mines; that having regulated those other things, the government must in turn regulate their feeders; and that this means repeating the New Zealand experiment in America.

We have said that this proposes to revert to the times when all property belonged to the government to be disposed of, at will, to the favorites of the monarch.

To these proposals we have received the following amazing answers by the proponents of these bills:

(1) We are not afraid of a benevolent despotism nor of the New Zealand experiment in America, because we have learned how to make both a success.

(2) We are not afraid of nationalization because that is a necessary preliminary to the internationalization of all raw materials, which alone will prevent war.

Fifth—The present administration won the support of the people on its slogan, "less government in business." That was considered by the people to be a solemn pledge. To pass this proposed legislation would be to repudiate that pledge. Repudiation of any pledge must destroy confidence in those who gave it voluntarily. No party—indeed, no government—can endure which has lost the confidence of its own people.

Submitted June 20, 1921, in behalf of the American Wholesale Coal Association by George H. Cushing.

Farmers of Middle West Plan Co-operative Purchase of Coal

PROGRESS of the plan for the pooling of coal buying by the farmers of the Middle West, discussed at a meeting of representatives of the farmers' organizations of these states in Chicago Monday, June 20, was outlined by F. W. Boyle, of the Federated Marketing Service of the Indiana Federation of Farmers' Associations at Indianapolis on his return. Mr. Boyle represented the Indiana federation at the Chicago meeting and was named on a special committee to work out a plan for co-operative coal marketing. This committee, he said, would make its report at a meeting of presidents and secretaries of the farmers' associations at the American Farm Bureau Federation headquarters Monday, June 27. John G. Brown, Monon, president of the Indiana Federation, expected to attend the meeting.

"After discussing the coal situation from every angle and reviewing what we have been doing in Indianapolis in the way of co-operative marketing," Mr. Boyle said, "the representatives decided to appoint a special committee to work out a plan. It was thought by the committee that it ought to adopt a scheme in conformity with the regional plan of purchasing commodities used in Indianapolis. The committee then asked that West Virginia establish a co-operative organization as soon as possible so that farmers' organizations of the Middle West might co-operate with it. J. B. McLaughlin, secretary of the West Virginia Farm Bureau, decided that this could be done. Mr. McLaughlin was recommended by the committee to be purchasing agent of West Virginia coals."

A. J. Stierwalt, purchasing agent for the Commercial Service League of the Ohio Farm Bureau Federation, was recommended to be purchasing agent of bituminous coal in Ohio and Kentucky and of anthracite, and Mr. Boyle was recommended to continue to function as purchasing agent for Indiana coal and for Illinois coal until the farmers of Illinois perfected a coalition of farmers' co-operative organizations.

According to the present plan, Mr. Boyle said, the coal will be purchased by the farm group and distributed to farmers by the existing distributors, such as farmers' elevators and coal dealers. "The radical change," Mr. Boyle said, "is that while the retailer has been considering himself as servant of the coal operators and brokers we view him as at least 50 per cent the servant of the people. He has been distributing to the people the coal he wanted to sell them, and now we want him to distribute to the people the kind of coal the people want to buy."

Mr. Boyle said that the saving to the farmers of the Middle West by the adoption of this scheme could only be the commissions paid to unnecessary middlemen and the saving that comes from intelligent purchasing of coal and the proper routing of cars so as to save freight. The constituency of the co-operative purchasing program, he said, will use millions of tons of coal. Based on the support the co-operative purchasing and marketing services have received in other articles, notably twine and fertilizers, he said, the co-operative coal-purchasing body should handle 3,000,000 tons of coal. The plan if adopted at the meeting Monday, was to go into effect immediately. "In fact," Mr. Boyle said, "we are ordering now on the quotations received from the West Virginia field."

Indiana Operators Will Fight Any Attempt At Government Regulation of Coal

SIGNIFICANT of the attitude of the Indiana coal operators in regard to the proposed legislation on coal, telegrams have been sent to Senator James E. Watson, Harry S. New, Representative Everett Sanders and Representative Oscar Bland by Phil Penna, Sr., secretary of the Indiana Bituminous Coal Operators, to the effect that the operators will stand firm against any such interference with their industry.

Mr. Penna sent the following telegram to the conference at Washington: "Please oppose any measure looking toward any interference with our industry. Better fight and lose than compromise sacred rights. There is no room for compromise without dishonor, however innocent such compromise may seem."

The Weather Vane of Industry

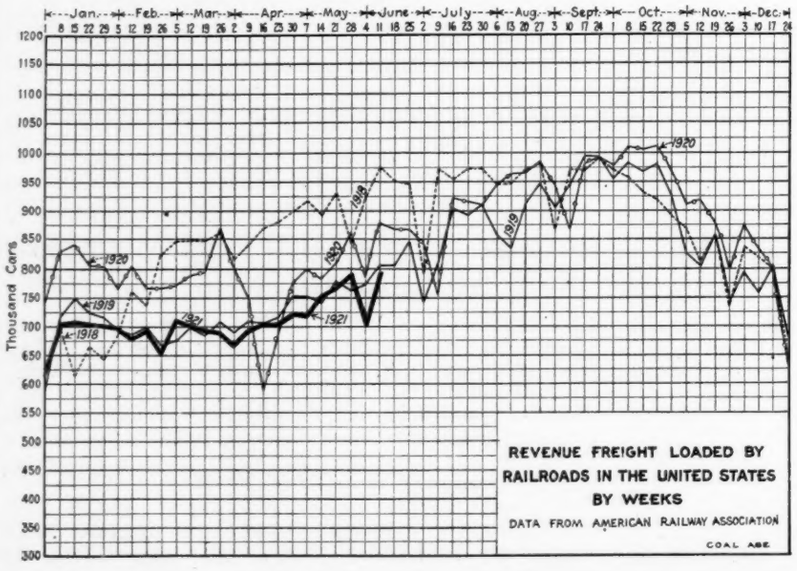
News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

SENTIMENT with respect to business, according to a bulletin issued June 21 by the National Bank of Commerce in New York, will naturally fluctuate in times like these. "The reaction from the spurt in spring business," the bulletin continues, "has caused disappointment. It is unwise, however, to expect other than quiet business during the summer months. Satisfactory recovery can come only after a protracted period, during which price liquidation must be completed as to manufactured and semi-finished goods and confidence in the future restored."

An increase of 82,489 in the number of cars loaded with revenue freight on American railroads during the week ended June 11, compared with the previous week, was shown by reports received by the Car Service Division of the American Railway Association. The total for the week was 788,997 cars, which was 141,979 cars below that for the corresponding week in 1920 and 18,208 cars under that for the corresponding week in 1919. In making comparisons with the previous week consideration must be given to the fact that observance of Memorial Day caused a reduction of the total for that week.

The loading of all classes of commodities except grain and grain products was larger than the preceding week, the largest gains being in merchandise and miscellaneous freight, which includes manufactured products, and in coal. The total for the first-named class was 469,295 cars or an increase of 52,074 over the previous week. Coal loadings totaled 163,088 cars, which was an increase of 20,414 over the previous week but 28,400 cars under the corresponding week last year.

A reduction within a month of more than 82,000 in the number of idle freight cars is shown by reports from railroads. On June 8 the number of cars in excess of current freight requirements was 389,526, compared with 471,922 cars on May 8. Tabulations showed that on June 8 there were 162,035 surplus coal cars, which was a reduction of 3,067 since June 1 and more than 58,000 within a month.



Ford Plant to Increase Output

Production of 4,000 automobiles daily during July was announced June 21 as the program of the Ford Motor Co. Officials predicted that the production for June would exceed that of any month in the company's history. Approximately 105,000 cars will be built at the Detroit plant alone. The Canadian plant in Windsor is scheduled to produce 7,000 cars, and another foreign factory will build 4,000, making the total output for June 116,000. In May 111,308 cars were constructed.

The Nash Motors Co., four-cylinder car division, Milwaukee, has recalled its force of about 800 men, as of July 5, the *Iron Age* states, for a resumption of normal production, which was interrupted June 1.

China Orders American Locomotives

The American Locomotive Co. will increase operations at its Schenectady plant within the next few days to work on an order for forty-six locomotives received recently for railroads in China. The plant had been operating on a reduced scale for some time. Operations in the Canadian mills also are expected to be increased shortly.

Wheeling Steel Mills Close

More than 2,500 men in the Wheeling (W. Va.) district have been thrown out of work as a result of the suspension of operations in full or in part of three mills of the Wheeling Steel Corporation June 18. Only six mills operated last week.

New Piston Ring Plant in Georgia

The Faultless Piston Ring Co. has been incorporated by capitalists of Rome, Ga., with $200,000 capital. The company will have its plant in Dalton, Ga.

B. & A. Locomotive Shops Close

The Boston & Albany R.R. locomotive repair shops in West Springfield, Mass., closed June 16 for an indefinite period, throwing about four hundred men out of work. The car shops will continue to operate with a full force.

Goodyear Takes on More Men

With sales of tires on the increase the Goodyear Tire & Rubber Co. recalled 1,200 former employees June 20 at its plant in Akron, Ohio. Dealers' sales are heavier than at any time since May, officials say. The order to close the factories from June 24 to July 5 for semi-annual inventory was rescinded, and the plants will close only on July 4 and long enough for a hurried inventory. The company is making 85,000 tires a week, and plans for increased production are being made.

Coal Stabilization Bill Not Likely to Pass; Seasonal Freights in the Balance; Frelinghuysen Hopeful

By Paul Wooton
Washington Correspondent

SENATOR FRELINGHUYSEN'S coal-stabilization bill has little chance to pass the Senate. Its companion measure, the seasonal rate bill, has only slightly better prospects. These opinions are very generally held as this is written, although Senator Frelinghuysen himself is positive in his statements that he will be able to bring each measure to a vote.

Sentiment against the stabilization bill crystallized rapidly last week. This feeling had its source in the rekindled realization that business is in no condition to permit of experimental surgery. The debate on the bills has been characterized by lack of enthusiasm on the part of any but Senator Frelinghuysen. It is admitted by even the opponents of the bills that the New Jersey Senator's presentation of the legislation was done in an impressive and masterful way. The trouble is he lacks support. The opposition is not saying much but is biding its time in full confidence that the legislation will not succeed.

The danger to the seasonal rate bill lies in the fact that Senator La Follette has used it as a medium to present various amendments which would all but repeal the Transportation Act of 1920. It is believed that Senate leaders will not allow these amendments to come to a vote. Unless these amendments go out on a point of order it seems probable at this writing that the seasonal rate bill will have to be sidetracked to prevent a vote on the La Folette amendments.

Further Regulatory Legislation Contemplated

One of the factors which has tended to arouse sentiment against the stabilization bill is the knowledge that further regulatory legislation is under consideration. It has been learned that a regulatory bill to apply to the steel industry is being drafted as well as a measure providing for certain federal supervision over smelters. Many Republican Senators who are not particularly concerned as to coal are apprehensive of the political effect of the action of a Congress called to consider tariff and taxation which shows every tendency to deliberate leisurely on matters intended to help business and in the meantime rushes through prohibition amendments, packer control and a great grist of incidental legislation.

Senator Frelinghuysen, in a statement issued June 26, charged that the National Coal Association, the Anthracite Coal Operators Association, the American Wholesale Coal Association, the National Retail Coal Merchants Association and various state and regional coal organizations have united in "one big union" to defeat pending legislation for the regulation of the coal industry.

The Senator declares that the coal organizations are bombarding Congress with "literary fusillades," which contain, as he expressed it, "an atom of fact and a ton of misrepresentation."

"For the last week," said Senator Frelinghuysen, "two coal bills introduced by me have been before the Senate. As this is a supremely important question, involving the happiness, the health, indeed, the very life of the public, the country should understand what this fight means. If these bills are defeated, a tragedy next fall and winter, in the nature of a coal famine, worse than ever experienced before, is inevitable. The fact is, owing to existing conditions, I doubt if the tragedy can be averted. But we can prevent a second tragedy a year later."

Says Existing Abuses Demand Relief

In opening the debate in the Senate on the seasonal coal freight rate bill and the coal stabilization bill Senator Frelinghuysen declared in a speech June 20 that existing conditions in the coal industry are uneconomic, that abuses exist and that relief in some measure is needed.

He said that the desire was to do something constructive to remedy present conditions, as next to the railroad question the coal problem was the most vital confronting the public and that a sufficient supply of coal distributed uniformly and produced at a reasonable price was essential to the life and energy of the nation. It is vital to every human and industrial activity, as without coal the nation would starve and freeze.

"People have suffered from high prices while some persons in the coal trade, without conscience, have taken advantage to profiteer," he said. He said freight rates were "sky high" and unless something was done to stimulate buying, last year's panic would be repeated, as transportation next winter may be overtaxed, causing a shortage. "Then drastic government action will again be demanded by the people," he said. The Senator declared that there was plenty of coal last year, enough labor to mine it, but a shortage of cars delayed deliveries, causing a buyers' panic, which was unnecessary, and that if there had been a government agency charged with responsibility of correctly informing the people, such as the pending legislation proposed, "the speculators would have been routed and the public saved from extortion."

The Senator said the public expects Congress to make some effort to relieve this situation and that it would not endure another season of coal prices ranging from $15 to $30 a ton, which prices were reflected in the cost of production in every factory, railroad and trolley rates, cost of power, gas and electricity, and which retarded housing development.

The Senator said the anthracite situation was complex, this coal selling from $12 to $15, while other commodities are selling from 20 per cent to 40 per cent lower than during the war. Notwithstanding these conditions he said the operators, the railroads with high freight rates, and the dealers "are complacent over the situation, and no one can tell why. No one seems to care except the consumer, who complains bitterly."

Would Remedy Evils by Publicity

The Senator said a thorough study by a government department, with the widest publicity, would remedy many of the evils and abuses now existing. He admitted that as to anthracite prices, high wages, increased cost of mining, royalties and freight rates have largely added to the cost, "but there seems to be an unduly large cost between the car at destination and the bin of the consumer, and nobody can tell the reason or find out." He said the proposed legislation provided that the Department of Commerce shall find out and make public the facts.

"I have no prejudice or enmity toward coal operators or dealers," Senator Frelinghuysen continued. "They should be treated fairly and be permitted to make reasonable profits;

but they should not treat the public unfairly or encourage conditions that cause unreasonable profits, and oppose publicity as to facts which reflect these conditions."

The Senator said the legislation did not control or regulate the coal business but it did compel full information and publication of all facts regarding the production and distribution of this essential commodity. It provided that the government should study the question and advise Congress and the public of all essential details that make up the price of coal. He said it has long been the duty of the government to know something more regarding coal production, which has been ignored for fifty years, while facts regarding many other utilities and commodities had been carefully studied. The Senator said he did not advocate government ownership, control or drastic regulations, nor did he believe that the government should compete with legitimate business or interfere with the law of supply and demand. He did believe, however, that the government should compel full information for the public benefit in commodities essential for the life and comfort of the people.

If relief was to be obtained immediate action sholud be taken on the seasonal rate bill to stimulate the movement of coal, as this commodity was the most important item of the railroads, representing one-third of their business, the industry representing an annual turnover of billions of dollars.

The Senator said the coal trade should not be "pilloried" for past offenses but constructive legislation should be had now to correct past evils. He said he avoided cases of spectacular losses in the business as the government could not undertake to guarantee incompetent mine managers a profit when they could not earn it by their own skill. The government cannot with safety go further than its restrictions against extortion; to attempt more would be to idemnify the buyer against faulty forecast of market conditions. He charged that last year extortion was practiced in the coal industry and that it was proper for the government to draw the line between profit and extortion and to make the latter a criminal offense. He referred to the tremendous increase in the size of the nation's coal bill in seven years and said the coal trade had made little progress in shrinking that inflated bill back to normal proportions.

Mining and Transportation Costs Not "Elastic"

Last year profits were very large and in some instances scandalously large. He said the cost of mining and transporting coal was not so elastic and coal men and railroads could give no encouragement that these costs are coming down. He said that the price paid at the point of discharging the railroad car for 556,500,000 tons of bituminous coal produced in 1920 was $2,500,000,000, or $4.50 a ton. The average freight rate was $2.50, or a total of $1,400,000,000, making a total to produce and transport 1920 bituminuos coal $4,000,000,000, or $7 per ton at the point of discharging the railroad car. In comparison he said that in 1914 the amount collected at the mine for 422,703,970 tons of bituminous was $473,000,000, or $1.17 per ton, to which the wholesaler added 7c., or $525,000,000 in all. The freight charges on coal in 1914 were $576,000,000, or $1.41 per ton, a grand total of $1,101,000,000, or an average cost of $2.61 per ton at the point of discharging the railroad car.

The wholesale bill of the people, he said, grew from 1914 to 1920 by $2,250,000,000 a year, and all that they had received to offset this expense was 133,000,000 tons of increased output. He estimated that the cost of producing a ton of coal had increased $1.86 per ton from 1914 to 1920, or 72 per cent. He gave the out-of-pocket cost of producing a ton in 1920 as 160 per cent greater than in 1914. The principal element in the cost was labor, which increased from 82c. to $2.19.

Referring to the increased transportation cost of 77 per cent from 1914 to 1920, the Senator said that nothing had been gained, as in 1914 there was sufficient transportation and that it was time the government should insist that it should get something in return for freight increases. He estimated that the cost of coal at the point of discharge of railroad car would in the future range between $5.51 and $6. The Senator was more concerned over future economy in the coal industry and transportation than he was in digging into the scandals concerning profits of coal men in 1920, as that had passed for the time being. Those profits, large and unreasonable as they were, were intresting as a matter of history, but the coal trade had assured Congress that this would not be repeated.

He estimated the gross margin retained by coal men in 1920 at $918,000,000 as compared with $63,000,000 in 1914. Of this amount, foreign buyers paid $255,000,000, and he concluded that this profit meant that the industry took from the people $5 per person. Against this the government collected in excess profits taxes $400,000,000. He believed seasonal freight rates would equalize distribution of coal.

The Senator said the obtaining of information was an inherent power of Congress and that the proposed legislation did not invade or overthrow private liberties. He said price fixing would not relieve the situation. In closing he said: "A great many coal operators are committed to the theory that the coal industry can be best exploited by maintaining the same seasonal speculative atmosphere, many producers resting complacently under the present depressed business situation in the belief that when the demand for fuel appears they will be able to employ the opportunity to recover the losses now being sustained, with compound interest."

Sharpless Is New Secretary of A.I.M.E.

AT THE directors' meeting of June 24 Frederick F. Sharpless was elected secretary of the American Institute of Mining and Metallurgical Engineers in place of Bradley Stoughton, who recently resigned to take up private work. Mr. Sharpless was born at West Chester, Pa., Jan. 22, 1866, and completed his schooling at West Chester Normal School in the years preceding 1884. In 1888 he became a Bachelor of Science of the University of Michigan and from that time till 1893 was professor of metallurgy at the College of Mines, Houghton, Mich. From 1893 to 1895 he engaged in consulting practice at Minneapolis. From 1895 to 1897 he was assayer for various mine companies in California, and from 1898 to 1912 was American representative of the Consolidated Mines Selection Co. From 1912 to 1919 he was consulting mining and metallurgical engineer. He has made examinations in Alaska, Canada, Mexico, Asia and Africa. He is secretary-treasurer of the Mining and Metallurgical Society and in 1919 was vice president.

Movements are on foot to build up four new sections, one to be known as the Lehigh Valley section, one of Gary (Ind.) men to be termed the Calumet section, one in Mexico to be designated the Tampico section and one in Charleston, W. Va. The directors authorized the three last-named sections at their June 24 meeting.

National Coal Association Officials Deny Attempt to Have Hoover Removed

PRESIDENT Bradley and vice president Morrow, of the National Coal Association, have emphatically denied published statements to the effect that coal operators are endeavoring to have Herbert Hoover removed from the Cabinet. Messrs. Bradley and Morrow join in a declaration that there is no foundation for such statements. On the contrary, they are anxious that Mr. Hoover be retained in the Cabinet because of his business ability and economic vision. Coal operators generally, Mr. Morrow asserts, believe Mr. Hoover to be one of the greatest assets of the administration. He knows of no movement to force Mr. Hoover's removal and would do all he could to oppose it if he did.

Fear Breaker Water Will Flood Mine

ALLEGING that the Jermyns are pumping water from a mine at Avoca, Pa., and using it to clean coal in their breaker, and are then returning it to the three Dunmore splits or Red Ash beds of their mine, thus flooding them and damaging a property of the Pennsylvania Coal Co., that company brought in two bills in equity on June 13 against the Suffolk Coal Co., owned by former Mayor Edmund B. Jermyn of Scranton, William Jermyn and Elizabeth White.

Warns Canadian Railway Commissioners of Coal Shortage Next Winter

C. R. MOORE, car service superintendent of the Grand Trunk Ry., gave a warning before Dominion Railway Commissioners in Ottawa June 21 of a coal shortage in Canada next winter unless more fuel was quickly imported.

Importations from the United States between Jan. 1 and May 21 this year were 336,000 tons less than in the same period of 1920, he said. He added that next winter the railroads must carry eastward the greatest crops of Canada's history, making the accumulation of more fuel imperative.

Mingo Operators Welcome Senate Inquiry

INVESTIGATION of the disorders in the Mingo County coal fields is provided by the Johnson resolution, which was passed finally by the U. S. Senate on June 24. It is expected that the investigation will begin this week at Williamson, W. Va., a subcommittee of the Senate Committee on Education and Labor conducting the hearing, headed by Chairman Kenyon of Iowa.

The following statement was given out by Harry Olmstead, chairman of the Labor Committee of the Williamson Coal Operators' Association, on learning that the Senate had decided to investigate the situation:

"The news that the U. S. Senate has completed the passage of the resolution providing for an investigation of the labor conditions and causes of present trouble in Mingo County is welcomed by the operators of the Williamson field. We are ready to show that there have been eighty-odd assaults committed upon the workers and the property of the operators by the strikers since the strike was inaugurated, on July 1, last year.

"We will show that workmen have been murdered and wounded; that houses, stores, tipples and working places have been burned or wrecked by dynamite explosions, which crimes were committed by the strikers. We will show by dozens of instances the firing upon workmen whose only offence was that they were working; we will show that they were workmen regularly employed at the plants, and not 'strike-breakers'—that is, men here merely to break a strike.

"We will show by confession of strikers arrested that assaults were planned at meetings of the locals of the U. M. W. of A. and conducted by men affiliated with that organization.

"We will show that the strike was not the spontaneous or even the planned act of the workmen living and working in this field but came in the nature of a siege contrived and conducted by state and national officers of the Mine Workers' organization; that its origin really dates back more than twenty years to a time when the United Mine Workers entered into a conspiracy, which has run ever since, with the coal operators of Indiana, Illinois, Ohio and western Pennsylvania to organize the West Virginia coal fields by any methods and at any cost for the purpose of driving West Virginia coal from the Western markets—that conspiracy being directed against the West Virginia miners and operators alike, and so necessarily affecting the interests of every citizen of the state."

W. H. Groverman Resigns as Secretary of Northwest Dock Operators Association

W. H. GROVERMAN has presented his resignation as executive secretary of the Northwest Coal Dock Operators' Association, of Minneapolis, after a service of more than five years in the office. The cause assigned is that the withdrawal of seven members from the roster of sixteen in the association leaves it unable to function along the lines originally intended. Mr. Groverman states that the association doubtless will continue to work but along somewhat different lines, mainly credits and collections.

Mr. Groverman was appointed to the position with the formation of the association on March 1, 1916. He went to the Northwest in 1911 as Western manager for the Island Creek Coal Co. During his régime as secretary of the coal dock association he rendered valiant aid to Dr. Garfield during the war and during the coal strike after the war. His efforts during the past two summers to arrange for an adequate supply of coal for the Northwest were not realized or appreciated by many. He worked day and night upon the matter, and presented to the Interstate Commerce Commission such thorough information that the necessary orders were issued whereby the Northwest was given consideration which otherwise would not have been extended. During the periods of uncertainty he spent weeks at the lower Lake ports and in Washington, keeping in close touch with developments and insisting that the Northwest be given a fair chance for fuel, and he got the coal.

Mr. Groverman's plans have not been announced as yet, but he states that he will continue to make Minneapolis his home.

Would Increase Railroad Efficiency by Intelligent Coal Purchasing

EFFICIENCY in the operation of the railroads could be greatly increased by a more intelligent policy with regard to the purchase of coal, E. Ludlow told the Senate committee which is investigating the general railroad situation. Among his recommendations were allocation to each railroad of a uniform grade of coal; avoidance of cross hauls, supplying each road from the most available supply with a minimum of mileage; placing of the fuel supply on a scientific basis, with employment of inspectors to maintain the quality of coal shipped and checking up of results; close cooperation with the coal operators, obtaining in that way economy and efficiency that cannot be obtained under the individual basis of buying, as at present; stabilization of the bituminous industry through purchasing greater amounts of coal during the summer months and storing it for use, with diminished shipments in the winter months.

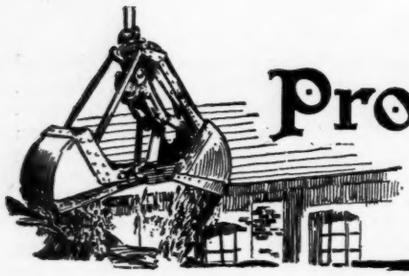
The public will benefit greatly by such a plan, Mr. Ludlow declared, for by releasing a portion of the tonnage which otherwise would be under contract to the railroads, more coal will be available for domestic consumers.

British Mine Owners and Mine Workers' Leaders Reach Understanding

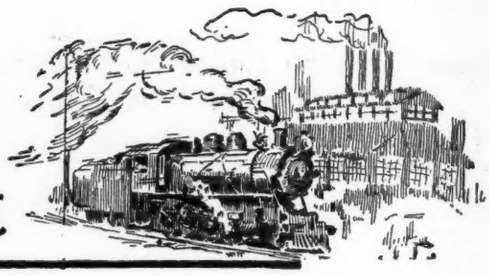
AT A MEETING of the Executive Committee of the British Miners' Union on the night of June 24 the leaders of the coal-mine workers decided to ask Premier Lloyd George for a conference. On the following day Mr. Lloyd George invited the mine operators and the representatives of the mine workers to a joint meeting to be held at the Board of Trade on June 27. As a result the leaders of the mine workers acquiesced with the owners' proposition provided the government conceded the £10,000,000 subsidy. Work is expected to commence July 4.

The decision appears to have resulted from the gradual impoverishment of the mine workers and of the unions which have given them support. The miners' union can no longer borrow, partly because the other unions have nothing to lend. The hope that other unions will strike in sympathy with the miners has faded with the progress of time.

The mine workers' leaders today are determined that industrial action is useless and are suggesting that the only hope is in taking political measures to attain their ends. They are now convinced that the continuance of the strike is a mistake. The recent ballot may have resulted as it did owing to a feeling that a firm stand would influence the government to make a larger concession either of taxpayers' money or of policy. The vote did neither. The only apparent result was a withdrawal of the government's offer of a subsidy of £10,000,000.



Production and the Market



Weekly Review

PRODUCTION of bituminous coal declined nearly 500,000 net tons to 7,549,000 tons in the week ended June 18, from the 8,000,000 ton rate of the previous five weeks. This drop is largely, if not entirely, accounted for by the decrease in loadings at the mines for shipments up the Lake and by a corresponding but smaller decrease in mine loadings of coal for export to Europe. Heavy accumulations of loads at lower Lake ports, reaching well over a million tons, caused the railroads to urge on the shippers the advisability of easing up on loadings until the jam at Lake Erie is partly cleared up. No new feature was introduced in the market as a result, particularly since there is little trading on Lake coal, this heavy tonnage being on contract or moving on owners' account.

At Tidewater, where in recent weeks foreign demand has maintained a fairly steady call for both high and low volatile coal, the anticipated settlement of the British strike (which did not materialize), discounted from two to three weeks in advance by British buyers, caused a marked drop in loading for foreign account the second and third weeks of June. Last week buying by the British was resumed.

Current demand for bituminous coal for consumers and retailers in this country has the appearance of being almost at a standstill. To say there is no demand, however, is not stating the conditions correctly. With production between seven and eight million tons a week, largely for consumers in this country, it is evident that coal is moving, and as contracting has been below normal it is equally patent that there is a free coal market. The available supply, however, is so greatly in excess of the free coal demand and buyers are so discriminating in their tastes and particular about prices that the market is dead.

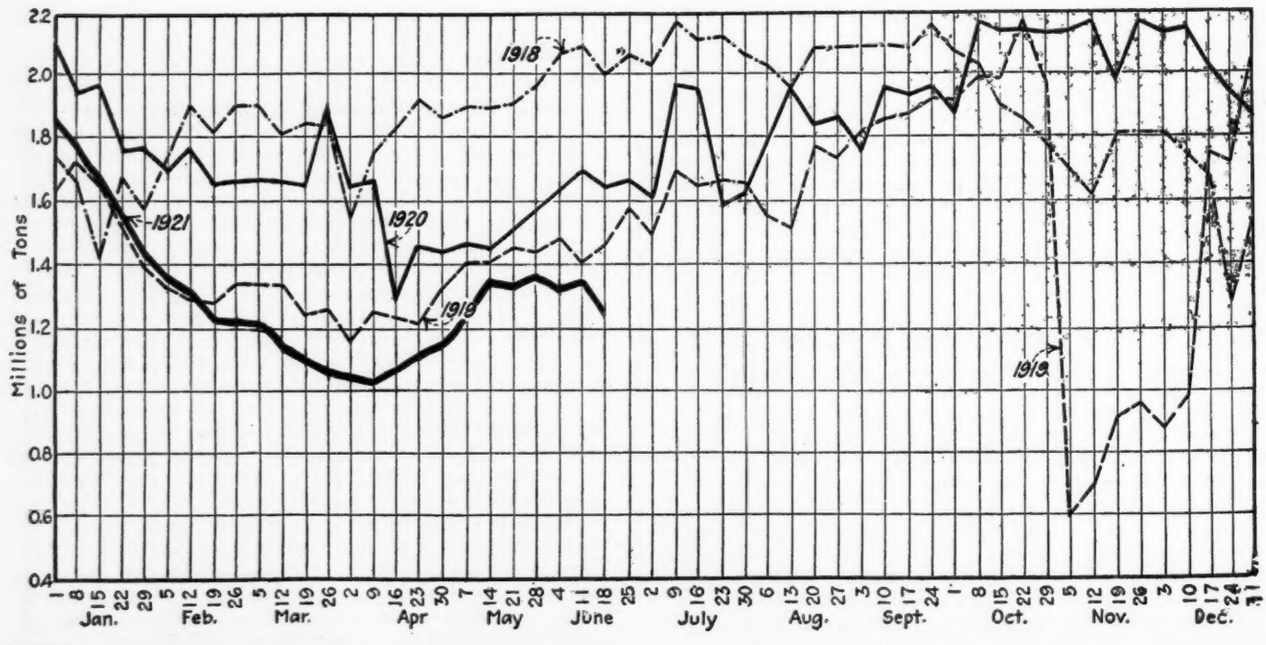
Coal Age Index Touches New Low Level

Coal Age index reflects this condition, recording a new low for the year at 91 for the week ended June 28, a drop of 1 point from the previous week.

Locally we find New England heavily stocked with soft coal, averaging from 3 to 4 months' supply on hand, with prices slowly but steadily dropping and demand so irregular that buyers almost name their own figure.

The same condition of demand characterized reports from points farther west, Buffalo describing the market as super-saturated, and Chicago telling of what appears to Western producers as a flood of Eastern coal thrown on the market at low figures. At St. Louis conditions are termed deplorable, because of a condition general throughout the Middle West—retail dealers' yards full and the public not buying.

Daily Average Production of Bituminous Coal*



*From weekly report of Geological Survey.

Anthracite continues to move in unprecedented volume, production for the week ended June 18 having been 1,940,000 net tons. Buying of sizes smaller than chestnut is off, however, and pea and the buckwheats are going into storage.

BITUMINOUS

Slipping down, both production and prices of soft coal are headed for a hot weather slump. Production as reported by the Geological Survey for the week ended June 18 was 7,549,000 net tons, a drop of nearly 500,000 tons from 8,012,000 tons the next preceding week. The decline is attributed to a forced decrease in loadings from lower Lake ports and to a temporary slump in export demand. The decrease was therefore largely confined to the Northern and Middle Appalachian region, in which production in the week of June 11 was 5,215,000 net tons.

Further declines in production are looked for, preliminary reports for the week of June 25 indicating a drop in loading at the mines of 1,200 cars, or 2 per cent, the first two days of the week.

The mine reports to the Geological Survey for the week ended June 11 indicate that the soft-coal industry was working 44.1 per cent of full-time capacity. Lack of demand remained the dominant factor limiting output, and to it losses amounting to 49.1 per cent of full time were ascribed.

Comparison of the operating reports for the week of June 11 with those for the preceding week (May 30-June 4) is rendered difficult by the occurrence of the Memorial Day holiday on Monday, May 30. A more satisfactory standard of comparison is the record of operating time during the week ended May 28, the last preceding full-time week. Measured against that standard the performance of the mines in the week of June 11 showed a general decrease in activity. No-market losses appear to be increasing in Illinois, Ohio, western Pennsylvania, and some of the Western States. The per cent of full time operated in Illinois decreased from 6.7 in the week of May 28 to 2.8. It was thus practically the same as the average for Indiana, 32.9 per cent, and for western Kentucky, 32.2 per cent. In the Middle and Southern Appalachians little change occurred.

Heavy Lake Dumpings Again Reported

Lake dumpings in the week ended June 27 were 1,073,733 tons compared with 596,080 tons in the same week last year and with 1,062,477 tons the week of June 20. Dumpings for the season now stands at 9,093,466 tons, as against 3,607,458 in 1920.

The outstanding feature of the distribution of Lake cargo coal for the present season up to the end of April was the change in the relative proportions of coal moving to American and Canadian destinations. In comparison with the season of 1919, which the present season most closely

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern	Market Quoted	May 24, 1921	June 4, 1921	June 21, 1921	June 28, 1921†
Pocahontas lump	Columbus	$5.50	$5.75	$5.50	**$5.50@$5.75**
Pocahontas mine run	Columbus	3.50	3.45	3.40	**3.50@ 3.60**
Pocahontas screenings	Columbus	....	2.40	2.40	2.25@ 2.50
Pocahontas lump	Chicago	5.25	5.25	5.65	5.50@ 5.75
Pocahontas mine run	Chicago	3.75	3.15	3.15	2.75@ 3.50
*Smokeless mine run	Boston	6.40	5.95	6.15	*5.90@ 6.10*
Clearfield mine run	Boston	2.40	2.25	2.25	*1.85@ 2.50*
Cambria mine run	Boston	....	2.95	2.85	2.60@ 3.10
Somerset mine run	Boston	....	2.20	2.10	*1.75@ 2.15*
Pool 1 (Navy Standard)	New York	3.55	3.45	3.45	*3.00@ 3.35*
Pool 1 (Navy Standard)	Philadelphia	3.25	3.35	3.25	*3.00*
Pool 1 (Navy Standard)	Baltimore	3.35	3.20	2.95	*2.80@ 3.00*
Pool 9 (Super. Low Vol.)	New York	2.85	2.85	2.85	*2.50@ 3.00*
Pool 9 (Super. Low Vol.)	Philadelphia	3.00	2.95	2.85	*2.60@ 2.80*
Pool 9 (Super. Low Vol.)	Baltimore	3.05	2.85	2.70	*2.50@ 2.75*
Pool 10 (H. Gr. Low Vol.)	New York	2.60	2.45	2.50	*2.25@ 2.60*
Pool 10 (H. Gr. Low Vol.)	Philadelphia	2.70	2.55	2.45	2.25@ 2.50
Pool 10 (H. Gr. Low Vol.)	Baltimore	2.50	2.40	2.35	*2.25@ 2.35*
Pool 11 (Low Vol.)	New York	2.25	2.15	2.35	*2.00@ 2.25*
Pool 11 (Low Vol.)	Philadelphia	2.45	2.35	2.10	*1.75@ 2.00*
Pool 11 (Low Vol.)	Baltimore	2.25	2.10	2.10	2.00@ 2.20
High-Volatile, Eastern					
Pool 54-64 (Gas and Steam)	New York	2.05	1.90	2.00	*1.75@ 2.15*
Pool 54-64 (Gas and Steam)	Philadelphia	2.10	2.00	1.85	1.70@ 2.00
Pool 54-60 (Gas and Steam)	Baltimore	1.90	1.85	1.75	*1.70*
Pittsburgh sc'd. gas	Pittsburgh	2.80	2.75	2.50	2.40@ 2.60
Pittsburgh mine run(steam)	Pittsburgh	2.10	1.95	1.85	1.75@ 1.90
Pittsburgh slack (gas)	Pittsburgh	....	1.65	1.60	1.55@ 1.65
Kanawha lump	Columbus	3.40	3.50	3.45	3.25@ 3.65
Kanawha mine run	Columbus	2.65	2.20	2.15	2.00@ 2.35
Kanawha screenings	Columbus	....	1.25	1.20	1.10@ 1.25
Hocking lump	Columbus	3.25	3.25	3.15	3.00@ 3.25
Hocking mine run	Columbus	2.40	2.15	2.15	*2.00@ 2.20*
Hocking screenings	Columbus	....	1.20	1.20	1.10@ 1.25
Pitts. No. 8 lump	Cleveland	3.25	3.25	3.25	3.00@ 3.50
Pitts. No. 8 mine run	Cleveland	2.25	2.10	2.10	2.00@$2.15
Pitts. No. 8 screenings	Cleveland	2.00	1.40	1.25	*1.05@ 1.25*
Midwest					
Franklin, Ill. lump	Chicago	3.70	3.55	3.65	*3.00@ 4.05*
Franklin, Ill., mine run	Chicago	3.15	3.00	2.90	2.25@ 3.50
Franklin, Ill. screenings	Chicago	2.35	2.00	1.95	1.25@ 2.50
Central, Ill. lump	Chicago	3.25	3.15	2.65	2.25@ 3.00
Central Ill. mine run	Chicago	2.60	2.50	2.40	2.00@ 2.75
Central Ill. screenings	Chicago	1.90	1.60	1.65	1.00@ 2.25
Ind. 4th Vein lump	Chicago	3.50	3.15	2.90	2.50@ 3.25
Ind. 4th Vein mine run	Chicago	3.10	2.60	2.50	2.25@ 2.75
Ind. 4th Vein screenings	Chicago	2.15	1.75	1.70	*1.25@ 2.00*
Ind. 5th Vein lump	Chicago	3.25	3.00	2.75	2.25@ 3.25
Ind. 5th Vein mine run	Chicago	2.50	2.45	2.40	2.00@ 2.75
Ind. 5th Vein screenings	Chicago	2.20	1.85	1.70	*1.25@ 2.00*
Standard lump	St. Louis	2.40	2.15	2.15	2.00@ 2.25
Standard mine run	St. Louis	1.75	1.75	1.75	1.75
Standard screenings	St. Louis	1.25	.95	.90	*.85*
West Ky. lump	Louisville	2.65	2.55	2.55	**2.30@ 3.00**
West Ky. mine run	Louisville	2.20	1.90	2.00	1.75@ 2.25
West Ky. screenings	Louisville	1.90	1.50	1.45	**1.50@ 1.60**
South and Southwest					
Big Seam lump	Birmingham	3.70	3.80	3.65	3.55@ 3.75
Big Seam	Birmingham	2.95	2.50	2.50	2.25@ 2.75
S. E. Ky. lump	Louisville	3.90	3.65	3.65	**3.50@ 3.85**
S. E. Ky. mine run	Louisville	2.60	2.25	2.25	2.00@ 2.50
S. E. Ky. screenings	Louisville	2.55	1.45	1.45	*1.00@ 1.75*
Kansas lump	Kansas City	5.00	5.25	5.25	**5.25@ 5.50**
Kansas mine run	Kansas City	4.15	4.40	4.40	*4.25*
Kansas screenings	Kansas City	3.75	3.15	3.15	**3.25**

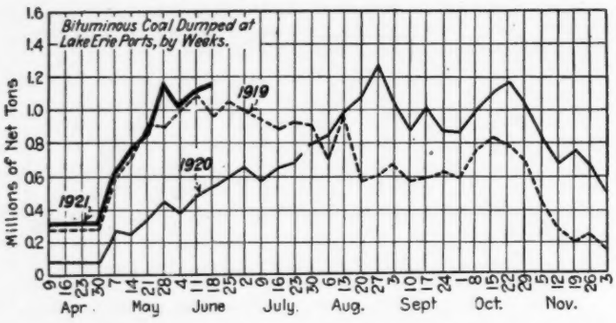
* Gross tons, f. o. b. vessel, Hampton Roads.
† Advance over previous week shown in **heavy type**, declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	June 14, 1921 Independent	June 14, 1921 Company	June 21, 1921 Independent	June 21, 1921 Company	June 28, 1921† Independent	June 28, 1921† Company
Broken	New York	$2.61	$7.85@$8.15	$7.30@$7.75	$7.85@$8.15	$7.30@$7.75	$7.85@$8.15	$7.30@$7.75
Broken	Philadelphia	2.66	7.90@ 8.20	7.45@ 7.85	7.90@ 8.20	7.45@ 7.85	7.90@ 8.20	7.45@ 7.85
*Broken	Chicago	5.62	12.65	12.40	12.75	12.50	12.75	12.50
Egg	New York	2.61	7.85@ 8.50	7.30@ 7.75	7.85@ 8.50	7.30@ 7.75	7.85@ 8.50	7.30@ 7.75
Egg	Philadelphia	2.66	7.90@ 8.20	7.45@ 7.85	7.90@ 8.20	7.45@ 7.85	7.90@ 8.20	7.45@ 7.85
*Egg	Chicago	5.62	12.50	12.35	12.60	12.45	12.60	12.45
Stove	New York	2.61	8.15@ 8.75	7.60@ 8.10	8.15@ 8.60	7.60@ 8.10	8.15@ 8.60	7.60@ 8.10
Stove	Philadelphia	2.66	8.15@ 8.60	7.80@ 8.20	8.15@ 8.60	7.80@ 8.20	8.15@ 8.60	7.80@ 8.20
*Stove	Chicago	5.62	13.10	12.70	13.20	12.80	13.20	12.80
Chestnut	New York	2.61	8.15@ 8.50	7.60@ 8.10	8.15@ 8.50	7.60@ 8.10	8.15@ 8.50	7.60@ 8.10
Chestnut	Philadelphia	2.66	8.15@ 8.50	7.75@ 8.20	8.15@ 8.50	7.75@ 8.20	8.15@ 8.50	7.75@ 8.20
*Chestnut	Chicago	5.62	12.85	12.60	12.95	12.70	12.95	12.70
Pea	New York	2.47	5.00@ 6.00	5.85@ 6.20	5.50@ 6.00	5.85@ 6.20	5.50@ 6.00	5.85@ 6.20
Pea	Philadelphia	2.38	5.50@ 6.00	6.10	5.50@ 6.00	6.10	*5.50@ 5.75*	6.10
*Pea	Chicago	5.62	10.80	10.70	10.90	10.80	10.90	10.80
Buckwheat No 1	New York	2.47	2.75@ 3.00	3.50	2.75@ 3.00	3.50	2.75@ 3.00	3.50
Buckwheat No. 1	Philadelphia	2.38	3.00@ 3.25	3.50	2.75@ 3.00	3.50	*2.50@ 3.00*	3.50
Rice	New York	2.47	1.70@ 2.25	2.50	1.70@ 2.25	2.50	2.00	2.50
Rice	Philadelphia	2.38	2.00@ 2.25	2.50	1.75@ 2.25	2.50	1.75@ 2.25	2.50
Barley	New York	2.47	.75@ 1.10	1.50	.75@ 1.25	1.50	1.00	1.50
Barley	Philadelphia	2.38	1.00@ 1.25	1.50	1.00@ 1.25	1.50	1.00@ 1.25	1.50
Birdseye	New York	2.47	.....	2.50	.....	2.50	.....	2.50

* Prices and freight rates net tons; quotations f.o.b. cars, Chicago.
† Advances over previous week shown in **heavy type**, declines in *italics*.

resembles, the proportion moving to Canadian ports increased from 10 to 25 per cent, while that moving to American destinations decreased from 90 to 75 per cent. Other differences were a decline in shipments to Lake Superior and an increase in the movement to Lake Michigan.



The all-rail movement to New England improved during the third week in June. A total of 3,571 cars of anthracite and 3,478 cars of soft coal was forwarded eastbound through the rail gateways over the Hudson, increases over the preceding week of 541 and 335 cars, respectively. During the calendar year to date, according to the Geological Survey, there have been forwarded 74,884 cars of soft coal, against 76,982 in 1920 and 63,992 in 1919.

CARS OF COAL FORWARDED OVER THE HUDSON TO EASTERN NEW YORK AND NEW ENGLAND

	1921		1920	
	Anthracite	Bituminous	Anthracite	Bituminous
June 4.....	3,067	3,052	3,607	3,562
June 11.....	3,030	3,143	3,432	2,817
June 18.....	3,571	3,478	3,255	3,874

At Tidewater, buying for the United Kingdom was resumed last week when the expected resumption of mining failed to materialize. On Tuesday and Wednesday, June 21 and 22, orders were placed for a considerable tonnage of high volatile coal for prompt shipment to Great Britain and there was a scurry for boats that resulted in boat rates mounting $1 at once. It is reported that 50 boats were chartered on those two days and that cargo coal for this tonnage was secured with no effect on coal prices. This business with Great Britain is done on the basis of c.i.f. quotations and it is therefore evident that profits on this business is being shared with boat interests. Total dumpings at Hampton Roads in the week of June 23 were 401,129 gross tons, a decrease from the previous week of 74,326 tons.

Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY

(NET TONS)

BITUMINOUS COAL

Total Bituminous, Including Coal Coked

	1921		1920	
	Week	Calendar Year to Date	Week	Calendar Year to Date (a)
June 4(b).....	6,835,000d	167,460,000	9,141,000	216,890,000
Daily average....	1,330,000	1,277,000	1,662,000	1,648,000
June 11(b).....	8,012,000	175,471,000	10,355,000	227,245,000
Daily average....	1,335,000	1,280,000	1,726,000	1,651,000
June 18(c).....	7,549,000	183,020,000	10,095,000	237,340,000
Daily average....	1,258,000	1,279,000	1,683,000	1,653,000

(a) Less 2 days' production during first week in January to equalize number of days covered for the last two years. (b) Revised from last report. (c) Subject to revision. (d) Week of Memorial Day holiday.

ANTHRACITE

	1921		1920	
	Week	Calendar Year to Date	Week	Calendat Year to Date(a)
June 4(b).....	1,573,000	39,146,000	1,536,000	37,147,000
June 11.....	1,963,000	41,109,000	1,960,000	39,107,000
June 18.....	1,940,000	43,049,000	1,853,000	40,960,000

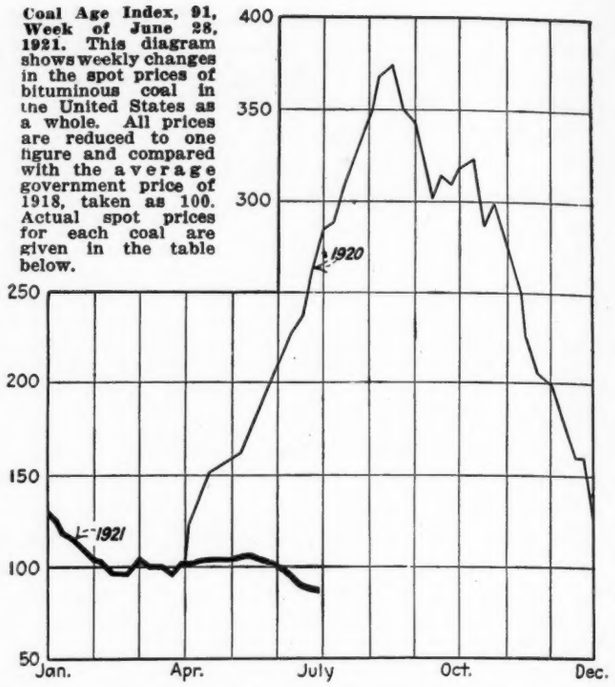
(a) Less 2 days' production during first week in January to equalize number of days covered for the last two years. (b) Week of Memorial Day holiday.

BEEHIVE COKE

Week Ended				
June 18 1921(a)	June 11 1921(b)	June 19 1920	1921 to Date	1920(c) to Date
55,000	61,000	372,000	3,307,000	10,126,000

(a) Subject to revision. (b) Revised from last report. (c) Less 2 days' production during New Year's week to equalize number of days covered for the last two years.

Coal Age Index, 91, Week of June 28, 1921. This diagram shows weekly changes in the spot prices of bituminous coal in the United States as a whole. All prices are reduced to one figure and compared with the average government price of 1918, taken as 100. Actual spot prices for each coal are given in the table below.



An interesting feature has developed in central Pennsylvania. The Lehigh Valley R.R. is buying coal on the open market at $1 per ton less than it can produce and has accordingly closed its own mines. Non-union mines, having reduced wages, are securing the bulk of what little business is offering as the mines operating on the higher union schedules cannot compete in the present close market. Steel companies, in the open shop field, having adequate plant reserves, are turning production from their own mines into commercial channels to the further detriment of union operations.

ANTHRACITE

The output for the week ended June 18 was 1,940,000 net tons as compared with 1,963,000 tons for the week preceding. Production is being maintained as the demand for domestic coals has, until the last week, held firm. However, it is apparent that a slump in the output is inevitable, as household buying is becoming more sluggish day by day, while retailers' bins are well filled. Two factors are holding this coal back from summer storage—lack of ready money caused by the wave of unemployment, and the belief that coal prices must come down in proportion with other commodities.

At this writing there is no indication that the usual 10 cent monthly advance on domestic sizes will not be scheduled July 1, with an additional increase in the near future to cover the new Pennsylvania state tax. The effect of any increase probably will be a realization by the consumer that coal, instead of being lowered in price, is on the upgrade and some temporary stimulus to the demand may be felt.

COKE

Production of beehive coke reflects the depression in the iron and steel industry. Output for the week ended June 18 is estimated at 55,000 net tons by the Geological Survey, a drop of 6,000 tons. The greatest decline occurred in Pennsylvania and Ohio.

No sales of Connellsville coke to furnaces have been reported and quotations are therefore purely normal. Consumption is decreasing steadily and there is no revival in sight.

Foreign Market And Export News

Hampton Roads

Thirteen Shipping Board vessels which have lain idle here for several months, have been allocated to operators and will begin loading at once for foreign ports. This is regarded by local dealers as a strong boost for foreign coal shipments from Hampton Roads. Practically all of these vessels will load coal for the United Kingdom.

It is estimated that within this week at least thirty vessels will come to Hampton Roads to carry coal to the British Isles, this in spite of the fact that the British coal business showed strong indications last week of falling off very noticeably.

C. I. F. prices reported were as follows: United Kingdom, $12.60; Hamburg, $12.65; Gilbraltar, $12.50; Rio de Janeiro, $11.90; The Plate $11.40; Havana, $8.60; Scanadinavian ports, $13.35.

Hampton Roads clearances last week were as follows:

(Ports given when of record)

	Tons
For Argentina:	
Du. S.S. Lingedijk	5,130
Br. S.S. Clitower	4,710
For Brazil:	
Br. S.S. Segura, for Bahia Blanca	6,442
Br. S.S. Comeric, for Rio de Janeiro	8,776
Br. S.S. Framingham Court, for Rio de Janeiro	5,926
For Cuba:	
Am. S.S. Everglades, for Havana	2,899
Nor. S.S. Bratland	3,033
For United Kingdom:	
Br. S.S. Iperia	4,019
Br. S.S. Torrent, for Queenstown	4,631
Am. S.S. Hoxie, for Dublin	5,451
Am. S.S. East Side, for Dublni	4,966
Br. S.S. Whitegate, for Portland	6,557
Grk. S.S. Rokos Vergottis, for Queenstown	7,890
Am. West Celeron, for Dublin	2,982
Br. S.S. Roseden, for Queenstown	6,662
For Italy:	
Ital. S.S. Boheme, for Venice	6,398
Am. S.S. Hayden	7,997
Am. S.S. Waukau, for Sicily	7,224
For Portugal:	
Am. S.S. Maquan, for Lisbon	7,505
Br. S.S. Maid of Chios, for Azores	4,000
For Germany:	
Nor. S.S. Bjornsterne Bjornson, for Hamburg	7,863
For France:	
Am. S.S. Orient, for Havre	6,452
For Denmark:	
Am. S S. Tonseit, for Copenhagen	3,258
Am. S.S. City of Alton, for Copenhagen	6,347
For Chile:	
Am. S.S. Cocique, for Punta Arenos.	
For Australia:	
Am. S.S. Suricho, for Birkenhead	4,395
Am. S.S. Suelco, for Birkenhead	4,341
For Egypt:	
Br. S.S. Jason, for Port Said	2,570
Jap. S S. Rozan Maru, for Port Said	6,906
Jap. S.S. Yugao Maru, for Suez	3,496
For Holland:	
Br. S.S. Bourne, for Rotterdam	7,617
For Russia:	
Br. S.S. Cymric, for Petrograd	5,577
Br. S.S. Kingsbury, for Las Palmas	5,542
Am. S.S. Glen White, for Las Palmas	7,028
Br. S.S. Marshall Haig, for Las Palmas	5,315
Br. S.S. Arcadian Queen, for St. Georges	774
Am. S.S. Liberty Land, for Tiburon	7,038
Br. S.S. Ernemore, for Funchal	6,149

New Saar Coal Prices

New Saar coal prices, effective April 1, include coal tax and are f.o.b. truck pit-head for sales ranging from 300 to 1,000 metric tons, a rebate being allowed for larger tonnage. Prices, in francs, for the different coals, classed according to origin into three grades of bituminous and flaming coal each, are as follows:

	Bituminous Coal	Flaming Coal
De-stoned	97@112	90@103
Washed:		
Cobbles	110@124	100@114
Nuts No. 1	110@124	100@114
Nuts No. 2	97@108	93@112
Nuts No. 3	93@107	90@103
Small pea	77@ 82	66@ 86
Mine run:		
Rough	70@ 84	68@81
Slack	62@ 66	60@62
Culm	32	30@31
Washings and mixed	20@28	18@26
Coke:		
Pit		128
No. 0 (2x3-in.)		135
No. 1 (1.4x2-in.)		135
No. 2 (0.6x1.4-in.)		123

EXPORTS OF ANTHRACITE through the Port of New York in April, 1921, were 9,975 tons as compared with 9,637 in the corresponding month of 1920, and 1,695 tons in 1919. During the same period there were 5,258 tons of bituminous coal sent to outside countries as compared with 1,385 tons in 1920 and 1,001 tons in 1919. Only 117 tons of coke were shipped from the port, as compared with 2,283 tons in April of last year and 468 tons in the corresponding month of 1919.

French Output and Coal Stocks

April production, exclusive of the Sarre, was 2,258,044 metric tons, according to the *Journal des Charbonnages*. Production for the same month in 1920 was 1,817,430 tons. Coal stocks on hand April 30 were 3,122,612 tons, compared with 4,500,000 tons on Jan. 1, 1921, and 1,500,000 tons on Jan. 1, 1920. Accumulated stocks of coal on hand in France are now being disposed of owing to the British strike. A report from Paris last week indicates that stocks have decreased to approximately 700,000 tons. However, only the best qualities are in demand and the lower grades are hard to sell.

Great Britain's New Coal Imports

It has developed that quantities of German reparation coal have been imported into Great Britain through France. In reply to a question in the House of Commons if the effect of this importation did not assist in beating down British miners' wages and cause a protest from mine owners, the Secretary for Mines states that no protest has been made by the owners and it has been generally recognized that it is necessary to obtain coal from any available source during the strike.

Until the strike, imports of coal into Great Britain had always been small; in April, 1921, 2,818 tons were imported into the country at an average declared per ton c.i.f. price of 58s. 2d. In March none was imported and in February the tonnage was 5,591 with a value of 47s. 8d. During 1920, imports were 3,671 tons, valued at 145s. 1d. per ton. The British Government is now permitting imported coal to be sold for bunkering purposes.

June imports to Ireland are increasing. Early in the month the S.S. Anacartis arrived with 5,640 tons of American coal, according to the *Colliery Guardian*. Some French coal has been received for military purposes. Cargoes of Belgian coal are arriving. This coal is mainly intended for cross-channel and deep-water steamers plying to and from the port of Dublin.

A contract is said to have just been signed at Mayence, Germany, on behalf of the British Government for the supply of several hundred thousand tons of Sarre coal, to be shipped from Sarrebruck to Ludwigshafen, and thence by Rhine lighters via Rotterdam to England. The first order of 100,000 tons is now being loaded. Negotiations are pending for at least a portion of the coal to be sent via Antwerp instead of Rotterdam.

CONTRACTS FOR 50,000 TONS of American coal have been placed in this country through British firms. The American Government will not issue clearances for Soviet Russian ports, as it has not recognized the Lenine-Trotzky régime, although cargoes are clearing for border state destinations.

WELSH QUOTATIONS FOR EXPORT, made earlier in the month, have been withdrawn and it is probable that they will be held over a time, pending the turn of the miners' strike. Sarre Valley large is offered ex-ship South Wales at 80s. and Belgian coal at 52s.

PRODUCTION AND STOCKS OF COAL IN FRANCE, APRIL, 1921 (In Metric Tons)

District	Total Mined—Coal	Total Mined—Lignite	Stocks at Mines, April 30, 1921—Coal	Stocks at Mines, April 30, 1921—Lignite	Stocks at Mines, April 30, 1921—Coke	Stocks at Mines, April 30, 1921—Briquets
Arras	690,107	.....	415,992	.....	19,238	2,663
Douai	392,045	.....	358,669	.....	9,744	15,973
Saint-Etienne	275,437	.....	249,725	.....	16,152	15,385
Lyons	211,554	.....	155,233	580	.....	5,090
Clermont-Ferrand	106,615	36	72,597	187	.....	.....
Alais	156,692	1,296	103,235	76	10	21,673
Toulouse	135,225	423	89,103	1,796	5,474	21,102
Marseilles	1,830	55,500	4,310	15,018	.....	.....
Nantes	6,840	.....	10,879	.....	.....	242
Bordeaux	6,112	1,440	11,408	295	.....	1,529
Nancy	8,283	58,706	8,653	5	6,800	.....
Strasbourg	267,304	.....	86,502	.....	5,145	.....
Sarre	2,257,444	.....	1,556,306	17,957	62,563	83,657
	4,515,488	117,401	3,122,612	35,914	125,126	167,314

Ruhr Mines Need New Equipment; Producing Now by Manual Labor

(Special Correspondence)

Everything in Germany is now done through the manufacturers' organizations, which have managed to gain a strong position of authority over the individual manufactor. These organizations are mostly indifferent—not to say in opposition—to further "mechanification" of labor, which is shown by the half-hearted way in which the "Committee for Economical Production" is treating such matters. The reason, of course, is the enormous amount of capital investments and work which a radical reformation of the production toward highest efficiency and economy would entail.

A striking illustration of this attitude is the case of the coal mines of the Ruhr district, which stand in urgent need of new equipment. The cost of modernizing these mines, whereby their efficiency could be raised from 30 to 50 per cent, is estimated at 9,000,000,000 marks. It is a peculiar fact, and characteristic of the incoherency of mind prevailing throughout the country, that because of haggling of who is to bear the burden of this investment the mines are allowed to be run down, and the whole production to rest solely on the quantity of manual labor, while enormous sums, far exceeding the amount required, are invested in publicutilty works, like the construction of inland waterways and hydro-electric power stations, schemes which will bear fruit only in a rather remote future.

THE AUSTRIAN COAL SITUATION is improving. Private individuals are now permitted to import and store coal under government supervision, while before all coal was handled through the coal controller. Coal is being secured in the Netherlands, costing about $10 per ton in Vienna.

CZECHOSLOVAKIA'S LIGNITE PRODUCTION has been increased to such an extent that it has permitted a larger importation from that country to Austria, and to this has been added Dutch coal of high heating value and briquets from Germany. The net result is a substantial improvement in Austria's coal situation as compared with a few months ago.

SARRE COAL MINES will be under state administration for fifteen years, through the provision of a bill just adopted in the French Chamber. After that period the management will be handed over to a private corporation, but under state control. The French Government is estimating that it can increase the pre-war production of 14,000,000 tons to at least 20,000,000 tons. The state will also organize a profit-sharing scheme and will enlist the best scientific advisers available to direct the actual operation and division of its Sarre mining undertaking.

Reports From the Market Centers

New England

BOSTON

Trade Very Dull—Variable Quotations —"Market Cargoes" Practice Is Discouraging — Somerset Coals Feature Low Prices — Anthracite Demand Begins to Sag.

Bituminous—The market continues without a sign of reaction. Steam-users are not interested in current offerings at any figure operating interests are willing to name and it is hard to see how there can be any general buying movement until well into the fall, if indeed then there is more than sporadic demand for other than the choicer grades. Even for the latter there is today only indifferent inquiry, and more than a few large producers are seriously considering radical cuts in quotations, mainly to keep their organizations in being. Not in years have there been such determined efforts to sell coal in this territory, and not within a like period have such efforts met with so light response.

Quotations seem to be individual. The range of prices is quite wide and is dependent not so much upon competitive offerings as upon the special situation at particular mines. Operators who were forehanded enough to take offshore business while it was to be had are in much less distress over June and July output, for the contracts made with Europeans last winter were of the kind considered dependable, and for the most part the coal is being taken in monthly quotas.

The domestic market is restricted to small orders; some users are buying from hand to mouth while others are adding small tonnages to present reserves. Stocks in general are held at three to four months, and until the industrial prospect improves the buyer can hardly be expected to pile up fuel at a rate faster than it is being used.

A few "market cargoes" have straggled forward to Boston and Portland, but they have been harder than ever to absorb, and the price return has been anything but encouraging. Some of these cargoes have been loaded at Hampton Roads, but there have been occasional lots of distress coal that shippers were under obligation to dump, both at Baltimore and at Philadelphia. Demurrage coal at the New York piers is more likely to be disposed of in New York harbor and there have been no recent instances reported of cargoes loaded there without consignment in hand.

Partly because of lower mining cost on the part of non-union mines, but chiefly because of the narrow market, the coals on the B. & O. are being offered here at so low a range of price as to be a feature of the current situation. Quotations on fair grades in the Somerset district have been heard well below $2, and it is nothing unusual to hear C Prime offered $1.75@$1.85. It is fair comment on the current market that so little of this coal is being picked up, even by the largest buyers.

The demand for Pocahontas and New River at Hampton Roads for shipment coastwise continues extremely quiet. A price of $6 per gross ton f.o.b. vessel is about the highest for spot coal, but the light tonnage moving is confined almost rigidly to contracts. Re-handling factors at this end are having their troubles to dispose of cargoes fast enough to permit even routine shipments.

Anthracite—It is perfectly clear now that we are going into a dull spell for domestic sizes. New England will still take a lot of coal in July and August, but there will be no snap to the demand and the more far-sighted shippers are striving now to keep orders well ahead of current mining. For several months pea size has been put into storage, and it is likely now that chestnut will soon be the subject of similar treatment.

Retail trade, meanwhile, is very quiet. The average householder is either influenced by talk that hard coal must recede in price, or he is so short of ready money that he will postpone buying until after the vacation season.

Tidewater—East

NEW YORK

Anthracite Demand Slipping — Steam Sizes Not Wanted—Bituminous Prices Soften—Market at Standstill.

Anthracite—Conditions foreshadow a period of comparative quiet during July and possibly throughout the greater part of August. A marked slowing down has already occurred in the retail trade. This is reflected to some extent in the wholesale branch.

Retailers continued to take coal for storage after their own business had fallen off, in order to have good stocks on hand against the anticipated fall rush.

Stove coal is moving well at wholesale, as retailers still have unfilled orders on their books for that size. To dispose of the full output of chestnut some of the companies are shipping their surplus up the Lake. Pea is so hard to move that it is being stocked to quite an extent, and the smaller independents are cutting prices.

Demoralization exists in the steam

coal market, and all the buckwheat sizes can be bought from individual operators at substantial concessions.

Bituminous—The local trade is more nearly at a standstill than at any time in the last few years. If anything, the dullness has been intensified by the approach of mid-summer.

Nothing in the industrial situation gives promise of an urgent demand in the near future, although some increase in volume of sales is not unlikely as consumers begin building up stocks for the winter. They have been holding off on the theory that freight rates were due for an early revision downward, but this hope has been dispelled by recent utterances of Government officials and railroad men.

Low prices in the open market are deterring consumers from entering into contracts. They are picking up spot lots as needed and are indisposed to make commitments for future deliveries at the figures which operators are demanding. Producers do not seem inclined to come down much on their asking prices on contract.

Prices in the open market have shown a tendency to sag during the past two or three weeks, especially on high and medium grades. The low grades have long been selling at unprofitable levels and are being produced to only a limited extent. No great accumulation of unsold coal exists at Tidewater, but there is sufficient to keep the market unsettled.

BALTIMORE

Home Market Continues Weak—Prices Go Even Lower—Export Situation Is Strong—Hard Coal Market at Practical Standstill.

Bituminous—A careful review of the local situation and comparison with reports from other sections of the country show a complete and most unsatisfactory harmony. General business is poor and showing little signs of the expected revival, demand for fuel is so light that even the tremendously reduced production is a drug in the market, and prices have fallen so low that they are in many cases below the actual production cost.

Even the best coals are not commanding any particular advance in price over fair to medium grades. If you ask a coal man the average selling price of best steam coals, and incidentally, the price of best lump gas, he will quote you $2.60@$2.90. At the same time it is a fact that the trade has been able to purchase from mines recently some Pool 9 or 71 steam coals, and some excellent Pennsylvania ¾-in. lump at $2.40 @$2.50. Pool 10 coals are running the range between $2.30@$2.50. Pool 11 is on the market at $2.10@$2.20, while the lower grade steam coals are offering down to $1.70. Excellent gas mine run is $2.30@$2.40 and West Virginia mine run can be had as low as $1.70.

The export situation continues strong. For the first eighteen days of June as reported officially by the Custom House twenty-nine ships took a total of 171,232 tons of export cargo, while twenty-one of these ships took an additional 23,217 tons bunker.

Anthracite—June has been rather remarkable here for an almost total lack of business. Whether due to the fact that there is less free money in the homes than for several years past, or to that unfortunate agitation in some official lines which led people to believe that they would get hard coal at lower figures, the fact remains that a large part of the delivery season has been lost. The charges that have been made in relation to retail handling have been unfair as a whole and yet have prevented the retail merchants from properly pushing sales. It is now an unfortunate fact that the public will again have to learn, even if they retain the lesson for a brief time only, that the crowding of all purchasing into a short fall and early winter will not only mean inadequate deliveries but higher prices. The effect of a wholesale and retail advance which is expected on July 1 is problematical.

PHILADELPHIA

Anthracite Continues to Ease—Chestnut and Pea Flood Dealers—Retailers Extend Much Credit—Bituminous Remains Dull—Further Shading of Prices —Export Inquiries Increase.

Anthracite—With temperatures above 90 during the past week the public has almost forgotten the retail coal man. The effect of considerable agitation in the news columns of the papers has been to throw a little additional business to the dealers, as the articles have clearly indicated that cheaper coal cannot be expected.

Stove is the only size that any dealer wants. Chestnut and pea are heavy, to the point that many cancellations have been received. The bins set aside by the retailers for these sizes are full to overflowing.

There is hardly any disposition on the part of shippers to shade prices, with the exception of pea. Some independents have become so badly clogged that they are offering pea as low as $5.50, yet even at this price they are finding it difficult to interest a buyer.

It is believed the companies will go ahead, mining and storing the family sizes, but as the smaller producers are not equipped for storing it is the general opinion that they will suspend rather than endeavor to move the coal by cut prices.

The steam sizes are quiet, as they have been all spring. However, most shippers report a good tonnage of buckwheat moving, yet the surplus of this size is such that some shippers are cutting 50c.

Bituminous—The outlook is far from cheerful, after passing through one of the dullest weeks to date. Some of the biggest iron plants are announcing complete shut-downs, possibly for the entire summer. Even those concerns which are running light are barely buying more than for current consumption. It is the opinion of some well informed shippers that the next two months will be the slowest we have experienced.

In the meantime sales officers have never made stronger efforts to induce business than they have recently. Some producers with very highest grades of coal, who ordinarily do not solicit business, are bending every effort to get orders.

There has been further softening of spot prices as shown in the Weekly Review. Westmoreland ¾-in. gas is offered at $2.75, mine run at $2.50 and slack $1.50. Greensburg coal has been sold at $2.35, and Latrobe for $2.25.

The one favorable sign is that there is something of an increase of inquiries for export shipment, with a fair amount of business closed. However, there could be a very heavy increase in this direction and yet it would not be sufficient to affect local conditions.

HAMPTON ROADS

High-Volatile Trading Is Brisk—Dumpings Decline—U.K. Orders Increasing.

Accumulations at Tidewater have increased very largely during the week, while tonnage awaiting cargo, except at the Newport News piers, has been reduced to a minimum. Business at the latter piers, in high-volatiles, continues brisk. The Lamberts Point and Sewalls Point piers have shown little activity.

A total of 1,562,059 gross tons of coal were dumped at the local piers from June 1 to June 22, indicating that the dumpings for the month will break the May record, which was the biggest month of the year, with a figure of 1,830,000 tons dumped at all piers.

Orders for the United Kingdom picked up during the week, with prices holding approximately at last week's figures. Pools 1 and 2 were offered this week $6@$6.25, while other pools stiffened somewhat, being quoted $5.35@ $5.50.

A comparison of the situation at the piers is as follows:

	Week ended June 16	Week ended June 23
N. & W. Ry. piers, Lamberts Point—		
Cars on hand	1,953	4,181
Tons on hand	91,988	210,902
Tons dumped	183,579	146,294
Tonnage waiting	3,860	16,850
Virginian Ry. piers, Sewalls Point—		
Cars on hand	1,752	1,896
Tons on hand	76,600	108,000
Tons dumped	104,769	85,998
Tonnage waiting	26,150	6,013
C. & O. piers, Newport News—		
Cars on hand	2,095	2,300
Tons on hand	104,410	114,660
Tonnage waiting	1,575	87,250
Tons dumped	187,107	168,837

BUFFALO

Dull as Ever—Some Shippers Quote Lower Prices — Overproduction Continues—Anthracite Quiet—Lake Loadings Good.

Bituminous—There is still too much coal offering and consumption appears to be falling off. This means lower prices and the general quotations show it. Consumers believing that it is not well to pile up stocks so long as there is no advance of prices in sight. Just as soon as business begins to improve,

all mines will turn out more coal, so that the prices will be held at the bottom till something else happens, probably a car shortage. As it looks now such a day is some time ahead.

It used to be said that it was harder to sell one car of coal than half a dozen, but the rule now is to see days go by with often no orders coming in at all. As in most times when the trade is extremely dull, prices are not at all steady. Some shippers are now inclined to report lower prices, while others are trying to hold them. Average quotations are $3 for Youghiogheny gas lump, $2.75 for Pittsburgh and No. 8 steam lump, $2.35 for Allegheny Valley mine run and $1.50@$1.75 for gas.

Anthracite—Consumers are in no way disturbed over the prospect of a short winter supply, so they wait to see if the prices will not come down. The output being well above that of last year to date it is probably safe to depend on the supply.

The larger independents are running, a premium of about 75c. being paid for the coal. The smaller mines seem uncertain as to what to do, but if the big profit was in the business that some people imagine, one would expect to see every mine running full capacity. Jobbers are interested in seeing them active, for all the anthracite they handle comes from such mines. If their connections are good they are able to sell more anthracite than bituminous sometimes, in these slack days.

Lake loadings keep up well, being 148,600 tons for the week ended June 18, of which 71,000 tons cleared for Duluth and Superior, 28,500 for Milwaukee, 16,600 for Fort William, 16,100 for Sheboygan, 9,500 for Port Arthur, 3,100 for Houghton, 2,800 for Racine and 1,000 for Kenosha.

Coke—Only an occasional car is being sold in this market. So many of the furnaces are idle that the ordinary purchases are sufficient to supply them. All transactions are merely by the way. Prices are slack, being on the basis of $4.50 for 72-hr. foundry, $3.75 for 48-hour furnace, $3.25 for slack and $5@$5.25 for domestic sizes, to which add $3.64 freight.

Northwest

MILWAUKEE

Consumers Holding Off for Lower Prices — Yards Well Supplied — Receipts by Lake Continue Heavy.

Apathy still prevails in the local market, with no prospect of a change until the public becomes satisfied that there will be no reduction in prices. Orders are few, and the yards are fast filling up. There is an abundance of anthracite, including pea and buckwheat sizes, which latter have been in small supply for the past few years because of its consumption by the industries.

Now that soft coal for steaming purposes, especially Western coal, has become cheaper, manufacturers are making use of it instead of anthracite. The stock of Pocahontas is unusually large.

Receipts by Lake continue heavy. Receivers are making use of all available storage room and docks not equipped with coal handling facilities are being filled up by self-unloading steamers. Thus far 360,787 tons of anthracite and 950,976 tons of soft coal have been received, against 228,571 tons of the former and 303,035 tons of the latter during the same period last year.

MINNEAPOLIS

Dock Supply Heavy — Interior Buying Dangerously Delayed — Only Bargain Coal Can Be Sold.

The dull commercial and industrial situation continues to make the sale of coal in the Northwest a very slow process. The docks have been accumulating good stores, due to the somewhat unexpected rush on the part of producers who have dock connections.

So far, the tonnage from the docks to the interior has been much under normal. People simply will not buy coal. This applies to the private consumer as well as the steam-plant operator. Of course the latter must have coal if he is to run his plant, but during the quiet time, he has been able to confine purchases to narrow tonnages, and is refusing to do more.

It is one of the unfortunate things that so many large users are not equipped to stock any quantity of steam coal, and so could not buy in quantity, if they were inclined to do so. However, they could all do one thing which most of them seem to be refusing to do, and that is to contract for future needs. Instead, they are holding off as much as possible, hoping to get lower prices. Incidentally, they are getting odd lots of coal now and then at prices under those which would rule under contract. Demurrage coal has been sold at considerable concessions.

There is no doubt that if this sort of thing keeps up for much longer, it will mean that the mines serving the Northwest will not have any surplus, and when everybody is rushing to get coal, there will be the usual shortage and premium prices will be offerd. There is ample logic in the attitude of buyers. They do not have to buy now if they do not see fit. It cannot be assured absolutely, that the fall and winter will see a car shortage, a coal shortage, and higher prices. But it is equally impossible to guarantee against these possibilities. The prospects seem to be for a gradual increase of industrial consumption, and it is as close to a certainty as anything can be, that there will be at least a moderate average need for domestic use. These equal a shortage, under average conditions unless there is some early forwarding of coal.

The wholesale trade will have to muddle through somehow. It is wholly to their credit that they always have been able to do this, in the face of some very trying and nearly impossible conditions. However, it seems to be in the nature of tempting Providence to let things slide until the last minute, and trust to the coal trade to make up for the lack of foresight. Eleventh hour repentances are as dubious a policy commercially as they are ecclesiastically. They may get by, but it is an unsafe thing to depend upon.

DULUTH

All Buying Is Sluggish—Dock Congestion Grows — Dock Prices Reduced — Retailers in Suspended State—Ore Industry at Standstill.

A quiet condition still prevails, with a lack of buying by both retailers and the public making a dark outlook for the future. Dealers had hoped that the the stagnant conditions on the iron range would move forward to the place of returned trade, but instead of improving these have grown worse and more mines have closed down.

Crowded condition of docks grows worse every day. Last week a new high mark in receipts was made when sixty cargoes were placed on the docks. Of these, seven were anthracite. Ore caroges for lower ports are growing increasingly scarce and it is thought that there will be a shortage of bottoms before the fall rush comes.

For the first time in the history of the coal business at the head of the Lakes, retailers are laying off their draymen because of the slackness in the anthracite market. Anthracite prices remain firm, and the possibility of a shortage before the final winter supplies are in increases every day.

Youghiogheny, Hocking and Splint lump prices remain at $6.50, with run of pile at $6. Screenings are quoted at $4. Even at these low figures sales do not mature.

Dock operators feel that the bottom in the slack market has almost been reached and that the buyers will soon realize that continued slowness will only mean a serious shortage in the fall.

Inland West

DETROIT

Lack of Buying Demand Is Still Prominent—Shipments Are Small and Free Coal Is Scarce — Anthracite Receipts Good.

Bituminous—Little business is being done in either steam or domestic sizes. Some of the wholesalers and jobbers say, however, that they are getting more inquiries from consumers of steam coal, who seem to have decided that there is little reason for expectation of lower prices.

With many factories operating much below normal, there is a considerable reduction in steam coal consumption, while general business conditions cause some consumers to hesitate about placing orders until they can obtain a better idea of the probable extent of their later requirements.

There is a tendency observed, also among certain of the consumers of steam coal, to hold off buying and await a reduction of freight rates. Even were freight rates lowered, the coal buyers, in the opinion of jobbers, would have little chance of getting coal cheaper. They believe a reduction in carrying charges would bring an activity in buying that would speedily carry prices to a level more than offsetting the cut in freight rates.

Not very much bituminous is coming into Detroit. Shipments of speculative coal practically have been discontinued after several tests in which the stock was moved at a disastrous sacrifice. Free coal on tracks is not readily found.

Smokeless lump and egg is quoted $5.50, mine run is around $3.50 and slack $2@$2.25. West Virginia lump is $3.25@$3.50, mine run $2.25@$2.50 and slack $1.90@$2. Ohio lump is $3@$3.25, mine run $2.15@$2.25, nut and slack $1.15@$1.25 and occasionally higher.

Anthracite—With a fair supply of prepared sizes in retail yards, demand from household consumers is slow to develop and distribution is making little headway. High prices and lack of employment are mentioned as factors in deterring buying.

CLEVELAND

Market Even Quieter — Slack Prices Drop—Lake Tonnage Declining—Some Activity in Automotive Industry.

Bituminous—Coal trade in this district has entered the second half of 1921 with all indications pointing to a summer of almost unprecedented dullness. This is all the more striking because of the sharp contrast with last year, when consumers were clamoring for coal. Slack coal has suffered another drop, the range of prices now being $1.05@$1.25.

The ample supply of cars and the increasing curtailment of manufacturing activities are combining to keep the coal market quiet. Virtually the only industrial news of encouragement in this district has been the announcement that the Ford Motor Co. has a daily schedule of 4,000 cars for July. Numerous parts plants in and around Cleveland depend almost wholly upon Ford orders for business.

Automobile orders are also appearing in more than expected volume at steel plants although they are not sufficient to sustain operations above rate of 15 or 20 per cent. Railroads are placing some orders. The New York Central lines west recently closed for about 1,000,000 tons of No. 8 coal to come from mines located along the right of way, the price being a shade under $3. The Cleveland Municipal Lighting Department has closed for 80,000 tons of bituminous from the middle Ohio district.

Lake—The movement is sagging. Shipments from the mines have decreased and stocks at lower docks are the lowest in more than a month. The movement for the season to date has been 7,782,957 tons against 2,759,206 for the same period one year ago.

Pocahontas and Anthracite—Retail prices are unchanged. Receipts of bituminous coal for the week ended June 18 amounted to 1,138 cars; divided, industrial 859, retail 279 cars; as compared with a total of 1,153 cars the preceding week.

CINCINNATI

Demand Stagnant — Lower Domestic Production Strengthens Steam Grades —Expiration of Old Contracts May Stiffen R.R. Buying.

Stagnation of demand, congestion of movement toward the Lake, and indifference to market conditions on the part of the buyer, are the features of this week's coal market. The buying power of the industrial wage earner precludes any demand from that direction.

Ten days ago nut and slack was a drug on the market and held back a heavy domestic demand. Now the status is reversed and domestic demand has been so poor that it has reduced the supply of nut and slack until that product is rising in price. The let-up in domestic demand is traceable to the indifference of the consumer who has made up his mind to sit tight until railway rates and wages, miners' wages, etc., are reduced.

West Virginia splint prices are around $3.75@$4 for lump; $2.25 for mine run, and nut and slack around $1.25 for the better grades. Harlan and Hazard 4-in. lump is $3.50@$4. As low as $1.65@$1.85 for mine run and 85c. for slack were heard of from the Elkhorn field, with the slack average $1.

Smokeless is held back by operators of standard mines who produce only sufficient to satisfy contract demand and to meet orders taken direct. As a result, orders are being received from $5.50@$6 and some coal caught astray has been sold as low as $4.50 for lump and egg and $3.50 for mine run.

The L. & N., Southern, and Virginian railways are all reported to have many contracts expiring June 30. Inasmuch as few contracts have been reported, Kentucky mines expect these railways to go into the open market for their needs and they believe the market will be stimulated thereby.

CHICAGO

Close Buying Features the Market— Retail Stocks Heavy — No Household Buying—Eastern Coals in Distress.

Outside of one or two rather small contracts for steam coal made with firms engaged in manufacturing building materials, there has been practically no activity whatsoever in the Chicago market. If these same operators had been offered this contract business three months ago, they would have refused it with scorn. We are citing this as an example of the fact that the coal industry is beginning to tighten up its belt and prepare for strenuous times when business will be taken on very narrow margins. In this connection, 100 cars were placed this week with an operator who managed to get the inside track and who cut his price down to one cent below that of his nearest competitor. Quality and preparation being equal, the low price gets the business every time, regardless of former friendly relations.

Yards of retailers are loaded to capacity. The public absolutely refuses to buy, being stubborn in the belief that coal prices will show further evidences of shrinkage. If this buying strike continues into the fall months, it will mean when the demand once does start, the yards will be swept bare. When the demand comes, it will come all at once and will bring about both a shortage of coal cars and coal.

There is a certain well defined rumor going the rounds in Chicago that one of the largest operating companies in this state is planning on closing its mines during the month of July. It is to be hoped that the operating company in question will go ahead with its program and close its mines. If it does, nine times out of ten, other operators in the same field will follow suit. These mines have developed a public of their own, and their public will buy from them rather than from other sources, consequently, should a number of these mines close down, it would mean the elimination of some excessive competition, which would be beneficial to all concerned.

In spite of several severe lessons recently given to Eastern operators, who shipped considerable quantities of splint and smokeless on consignment, more coal of this order is coming in and the market is completely shot to pieces. Anthracite is not in as strong a position as it was a week ago, although anthracite when compared with bituminous coal, is in a very enviable position.

COLUMBUS

Demand at Low Ebb — Lake Loadings Continue Heavy—Automobile Industry Picking Up.

Commercial users are buying only what they need for the present and are not disposed to stock up. With industry at a low ebb, fuel requisitions are generally small. Dealers are not buying to any extent because of the belief on the part of consumers that lower prices will maintain, especially as far as freight rates are concerned. Consumers also have not the ready money to lay in their coal supply at present and this is causing a dull market.

Some congestion at the Lower Lake docks has occurred but so far this has not been serious. Contracts for Lake tonnage are not numerous. The H. V. docks at Toledo during the week ended June 18 loaded 189,299 tons, as compared with 211,476 the previous week, a total of 1,363,562 tons for the season. The T. & O. C. docks loaded 46,990 tons as compared with 44,944 the previous week, making 332,063 tons for the season.

There is some stocking of the better grades of domestic such as Pocahontas, New River and Panther grades. Little demand for Hocking or Pomeroy lump is reported. Retail prices are fairly steady. Anthracite is selling around $15 while Pocahontas lump is $10.

Some concerns engaged in making automobiles have increased their forces but others are reducing their output. Railroads are not taking much fuel. Screenings are still weak, due to the large production for the Lake and prices are consequently lower.

ST. LOUIS

Buying Eases Up — Market Is at a Standstill—Country Business Shows a Little Activity—Prices Continue Lower.

Conditions are a trifle worse than at any time this season on account of storage buying coming to an absolute standstill. All yards have a good supply on hand, but the public is convinced that railroad rates must come down and the miners are going to take a reduction in wages, and are not buying.

Carterville is extremely easy. A little is moving in, mostly to fill in a few places in the larger yards. The country demand on Carterville shows little activity the past week.

Mt. Olive is not a factor at the present time. Very little is moving in, with no call at all. Some of this coal has been moving to points West and there has been some country domestic business during the past week.

On Standard there is no domestic moving in. A little has been shipped to points West, but everything indicates that the country dealer is finding conditions about as hard as his city brothers.

Steam tonnage has fallen off, both in the city and country from all fields and the situation is one of despair. No coke is moving to speak of and there is nothing doing on anthracite or smokeless. Retail prices are unchanged.

Southwest

KANSAS CITY

Fuel Oil Hits Steam Sizes of Coal—Domestic Demand Good, but Production Limited.

Domestic grades are moving freely, notwithstanding the fact that a majority of buyers are holding off, thinking there will be a reduction in price or freight rates. Prices are advancing instead of declining and there is no possibility of immediate reduction in freight rates.

On account of light demand for slack, due to substitution of oil, consumers in many instances will have to take mine run as it will be impossible to produce screened grades with no market for the fine coal. The open market for fuel oil is about 30c. per barrel f.o.b. refineries. This makes a delivered price here of $1.02 per barrel and it is stated but not confirmed that oil companies are offering to contract at $1.32 delivered. This puts coal out of the running entirely. Since last week some of the companies have advanced Kansas prices for lump and nut 25c. per ton.

South

LOUISVILLE

Demand Duller — Prices Slightly Weaker — Movement Is Slower — Lake Demand Easing.

As a result of Lake movement having been checked, and lack of demand for prepared sizes, the movement of coal from eastern Kentucky to the North has eased up somewhat.

In May the Hazard and Harlan fields had very large tonnages, the Harlan field shipping over 12,000 cars, a good deal of this tonnage being from the Wisconsin and U. S. Steel Co. mines, the latter moving over 180,000 tons. This broke all records for movement in the Harlan field.

The big Hazard mines with large contracts, and private owned mines of steel and industrial concerns have been running at full speed, but many small mines playing for general commercial and industrial trade have been practically at a standstill. Although large tonnages have been moved, it has not resulted in much commercial stock, as the steel companies have been raising huge storage piles for future use.

Inquiries are still being received for export, but not much business is resulting. A little coal is going through Savannah, Charleston and Jacksonville, for export to Italy.

During the past week some Hazard screenings have been quoted down as low as 90c., due to lack of demand at any price. The general market is showing a falling off of 15@25c. in minimum quotations this week.

West

DENVER

Trade Prepares for Heavier Orders—No Market Losses Decreasing — Slack in Better Call.

With storage prices nearing the figures that prevailed last winter, for bituminous as well as lignite, operators and dealers are preparing for an early fall trade based on a price of $6.50 for lump bituminous. This will probably become effective in September.

Bituminous slack, which had little stability during the early summer, is gradually coming into demand again, thereby giving operators a chance to work their mines to greater capacity than earlier in this season.

Car shortage again is taking on a serious aspect, crop movements getting heavier and cutting down the supply of box cars used to haul lignite and some bituminous coal. Lack of market is not so great as in past weeks.

News From the Coal Fields

Northern Appalachian

PITTSBURGH

Demand Decreased Further — Lighter Lake Shipments—Industrial Consumption Slumps.

There has been a further decrease in the line demand, and Lake shipments have slowed down on account of congestion of loaded cars. Production as a whole is below 40 per cent. The major part is going to the Lake and the public utilities. Practically all industrial consumption is at a very low ebb.

In the steel industry, operations are the lightest on record, in percentage of capacity, while in tonnage the production of steel is at the lowest rate for twenty years. It was back in 1899 that steel production was at the present rate, and in those years production of coal in the United States was at scarcely more than one-third the rate in the record year, 1918.

Production is now confined largely to mines that are forced to run for physical or financial reasons, prices having become quite unprofitable. Some operators think the light operations now promised for the next few weeks will cause miners to propose a revision of the scale for the purpose of increasing employment. The cost of production is held to be reflected by market prices of gas coal rather than steam coal, as with a fair demand and limited supplies, gas has not slumped like steam coal.

CONNELLSVILLE

No Sales to Furnaces Reported—Further Decrease in Output Expected—Prices Easier.

Consumption for both furnace and foundy coke has decreased further and additional ovens will have to go out. There is rather sharp competition among operators who desire to keep some ovens in operation, or rather there would be sharp competition if there were any inquiry to work on. In some quarters it is claimed there has not been a single sale of furnace coke to a furnace interest in the past week or ten days.

There have been sales of furnace coke, but they have been to outside users, for various purposes, and in most cases the sales have been in single carloads. Even for such little lots former

prices have been cut, sales of single carloads of standard furnace coke having been made at $3 net to the consumer, against $3.10 a week ago. It is reasoned that if a blast furnace wanted to buy twenty cars it could be had at close to $2.75. Ordinary grades of foundry coke are off 25c., while two operators having favorite brands still quote their former price of $5.

The market is quotable at $3 for spot furnace, $3@$3.25 for contract furnace and $4.25@$5 for spot foundry.

The *Courier* reports production in the week ended June 18 at 11,500 tons by the furnace ovens and 18,320 tons by the merchant ovens, making a total of 29,820 tons, a decrease of 3,170 tons.

UNIONTOWN

Market Absolutely Stagnant — Prices Drop — Consumers Refuse to Buy — Future Freight Rates a Question.

Production of coke during the past week struck the lowest ebb that it has reached for some time. There are some undestined carloads on track in the Connellsville region and one large operator is reported to have accepted $2.90 for a number of cars in order to get rid of them. The spot market for furnace tonnage may be placed at $3@$3.25 with foundry standing $4.50@$5.

The coal industry has suffered also. The highest price received was $2 and then the product was of the highest quality. Quotations place the price of coal at $1.65@$1.85 with few takers.

Evidently consumers are waiting before placing orders to see what the railroads are going to do in regard to freight rates, and it is probable that until some definite decision is made, very little coal and coke will be sold by local operators.

However, the revision of freight rates will take time and a return to normalcy is not looked for under the present prevailing rates. Until help is assured both coal and coke will continue to be a drug on the market, a situation which now prevails.

Consumers seemingly have no immediate need for tonnage and are not in the least concerned about the future. Until that time arrives it is hardly likely that much tonnage will move.

EASTERN OHIO

Production Declines—Lake Congestion Clearing as Shipments Are Curtailed—Prices Soften with Poorer Industrial Outlook.

Production showed a further decline for the week ended June 18, although the recession is not of any appreciable magnitude. Aggregate production amounted to 381,000 tons, approximately 60 per cent of capacity. This figure represents a decrease of 13,000 tons.

Accumulated tonnage for the year to date is estimated at 7,692,327 tons or about 52 per cent of the total rated capacity.

Association mines report a slight increase in production over that of the preceding week, having worked 55 per cent of possible worktime, while 40 per cent was lost account "no market." Railroads are taking about 25 per cent of the total output for fuel.

Aside from the Lake shipments which continue at a fairly good volume, the coal trade generally is in the "dumps." Industrial inquiries are neglible and purchases are made to supply barest needs from day to day, while in the retail trade dealers are doing less than 50 per cent of normal business, with no apparent results from an advertising campaign conducted during the past six weeks.

Coal is being dumped at the lower ports about as fast as it is coming forward and there is not much change in the supply on hand, the railroads having about 18,000 cars on track and arrivals averaging some 3,000 cars per day. The peak in the latter has subsided as shipments of Lake coal have been curtailed during the last few weeks.

There is an abundance of slack on the market and small quantities are being sold at less than $1 per ton. Spot prices are shown in the Weekly Review.

Unless there is some revival in demand, it is pretty generally felt there will be a further closing down of mines, as with the softening in spot prices to what is considered bed-rock, operators will have no other alternative.

CENTRAL PENNSYLVANIA

Production Again Declining — Non-Union Mines Getting the Business.

Production for the first half of June showed a slight increase but figures being received since then indicate a drop. Up to and including June 18, 36,280 cars were shipped as compared with 32,306 in the same period in May. The district is now loading approximately 60 per cent of its normal output but this is largely confined to the non-union sections. Union operators are producing less than 30 per cent.

A peculiar situation has come to light with the Lehigh Valley R.R., which owns mines at Snow Shoe. The railroad company is buying coal on the market at $1 per ton less than it can mine its own and consequently its mines are closed.

The big steel companies that have mines in the district are engaging in commercial trade and are selling coal at such low prices that the union mines cannot compete.

FAIRMONT AND PANHANDLE

Tidewater Shipments Slump — Market Conditions Fail to Improve — Production Dropping.

FAIRMONT

Production was slightly less during the week ended June 18 due to a drop in Tidewater shipments. There were around 210 mines idle in the northern part of the state from day to day and mines going had only about two days' work. In spots a few companies were producing in a limited manner, but if anything conditions appeared to be growing worse instead of better, with prices getting still weaker. Slack was down to $1, with mine run about $2.

NORTHERN PANHANDLE

With virtually no contracts being closed and with quietness prevailing in the spot market but little coal was moved except to Lake points. Congestion of the piers at the lower ports was growing so serious that a curtailment of this movement is in prospect. Prices ranged $2.50@$2.90 on prepared sizes, $2.25@$2.50 on mine run, and slack was soft at $1.50.

UPPER POTOMAC

Idleness More Pronounced—Spot Prices Soften—R.R. Business the Only Outlet.

Comparatively few plants were running during the week ended June 18. There was virtually no demand for spot coal and prices were decidedly weak; Pool 9 ranged around $2.75 and Pool 10 about $2.50. A little railroad fuel business was about all that remained. Aside from a few operations at Thomas and around Potomac Manor, idleness was general on the Western Maryland in the Potomac territory.

Middle Western

MIDWEST REVIEW

Production Still Dropping — No Monthly Price Increase for July — All Markets Sluggish.

It is fairly safe to predict that during the next few weeks the tonnage produced by this country will drop considerably below the 8,000,000-mark. Reports coming in from all over the Middle West are that sales are increasingly hard to make both on steam and domestic. Some of the mines producing the best grades to be had in the West are running at 25 per cent while others have philosophically decided to close down and wait until conditions become more normal.

Ordinarily at this time of the year, the retail trade is placing orders freely for coal to be used in threshing. This year no orders have been placed. The same amount of coal, however, will have to be used for threshing the grain. The difference is that this year the farmers are feeling so poor they are delaying purchases until the very last minute.

A few years ago, following the example set by the anthracite operators, the mine owners in Franklin County started the practice of raising the price of their coal 10c. every month throughout the summer season. This practice has been found to work to advantage as it gives the retail trade some little extra incentive toward stocking up during the summer months. This year the Franklin County operators have reluctantly come to the conclusion that it would be folly to increase their circular price for

the month of July; $4.05, therefore, will be the circular price for 6-in. lump, 6 x 3 furnace, and 3 x 2 egg. It is extremely problematical at this writing whether or not there will be an increase in August.

Demand for steam coals, if it can be spoken of as a demand, continues to be very sluggish. Those who are buying at all are only tempted into the market by bargains which are being offered at considerably below cost. Some of the industries engaged in producing building material are operating on a fairly satisfactory basis, but this is the only line of industry which has shown any signs of improvement during the last month. We have heard of several cases in which factories had placed orders for substantial tonnages, but a little later were forced to cancel on account of the fact that orders which had been in prospect had failed to materialize. If a very careful survey were made of all the factories in the Middle West, it would be found that the average factory has an ample supply of coal on hand. These stocks have been gradually built up since the first of the year when bargains began to be noticeable on the open market.

Labor conditions continue to be fairly satisfactory. There are, however, one or two mines experiencing a little trouble, but the labor market is so flooded that the miners are not in a very strong position. Added to this is the fact that the average operator needs but little encouragement to close his mines; should labor show an unreasonable spirit and no desire to cooperate in these trying times, the operators feel that they are quite justified in closing until labor difficulties have been adjusted.

WESTERN KENTUCKY

Movement Slow, but Prices Well Maintained — Not Much Overproduction — Domestic Moving Better.

The field is not overproducing at the present time, as some of the big companies are operating only a few of their mines, and some of the little ones are down. Some of the large companies which are operating are running at full speed, which is reducing costs, over part-time operations. As a whole the situation is not bad, as there is a fair demand for prepared sizes, and stoker burners are taking up a good deal of the steam coals.

There has been a slightly improved market for domestic sizes as a result of the season advancing, and retailers have been buying well in Louisville. The movement into Nashville, Memphis, the Chicago district and a few other points has been as good as anticipated.

SOUTHERN ILLINOIS

Market Continues Poor — Prices Still Breaking — Railroad Tonnage Light — Future Not Encouraging.

The Carterville situation is practically unchanged, except in the matter of price. Association prices are slowly but surely breaking. Franklin and Williamson screenings, both in Chicago and St. Louis markets, are around $1.25. Prices on domestic sizes of lump, egg and nut are weakening. The independents are as low as $3 for lump, egg and nut, $2.75 for mine run and they are unable to work more than a couple of days a week with these prices. Railroad tonnage is a trifle lighter.

In the Duquoin field somewhat similiar conditions exist, both as to prices and working time. In both fields many mines are idle and some work only one day a week. The Mt. Olive district is quiet, with one to two days work per week and not much break in the price. The St. Louis price is $3.25 and the country figure is $3.50. Most of this tonnage is moving north and west and steam business is principally on contract.

The Standard district continues in its demoralized shape. The mines that are working get one to three days per week and an announcement has just been made that several mines that are now working will suspend until conditions improve. Railroad tonnage continues light.

Country shipments from all Illinois districts are exceedingly small in comparison with past years.

Middle Appalachian

HIGH-VOLATILE FIELDS

Market Conditions Growing Worse—Prices Further Depressed—Lake Movement Slowing.

KANAWHA

Little coal was mined during the week ended June 18, owing to an almost total absence of spot demand. There was so little business being placed that prices were depressed further and producers who were able to secure as much as $2 for mine run considered themselves fortunate. Slack ranged $1@$1.10 and lump was not more than $2.75.

LOGAN AND THACKER

While Logan production was large, yet the bulk of the output was confined to a few companies shipping to their own docks at Lake points. Demand was not improved although inquiries were slightly heavier. Prices, when offered, were too low for operators' acceptance.

Thacker production fluctuated between 80,000 and 90,000 tons with no market losses amounting to about 70,000 tons, but there were no strike losses. Much coal was moving on contract, but the spot market was somewhat weaker if anything.

NORTHEASTERN KENTUCKY

Operations were not over 25 per cent of potential capacity. Market conditions were worse and complete stagnation prevailed. Industrial buying was lighter and Lake shipments were decreasing.

VIRGINIA

No headway was made by operators in speeding up production. Few spot orders were recorded, producers being dependent on such contracts as were still in force. Prices were still very soft, owing to the light demand. There was so little call for coke that almost none was being made or shipped.

LOW-VOLATILE FIELDS

Tidewater Demand Easier — Market Conditions Less Favorable — Steam Prices Pushed Down — Domestic Business Hard to Accept.

NEW RIVER AND THE GULF

With Tidewater tonnage declining the New River field felt the effect of the slump in demand during the week ended June 18. However, this had not yet restricted production, but had softened prices. Free coal was in excess of takers and Inland market prices on mine run dropped to as low as $2.50. There was no call for slack coal, which caused producers to accept fewer orders for the prepared sizes.

Gulf production did not average more than 55 per cent of capacity, due particularly to the drop in Tidewater demand. Much coal was accumulating at the piers, suggesting the possibility of an early embargo.

POCAHONTAS AND TUG RIVER

The lull in demand affected Pocahontas production very strongly. Spot demand was greatly weakened especially on slack coal. Hence, operators were not slow to accept orders for prepared sizes.

Tug River production also suffered as a result of the dwindling market for smokeless coal, shipments being confined for the most part to contract orders. Heavy Lake shipments were made, but much of this coal was not being dumped, adding to the growing congestion at the lower docks.

West

UTAH

Public Will Not Buy — Low Rate of Operations — Prices Unchanged.

The coal situation here remains unchanged. An official of one of the prominent retail agencies of Salt Lake City, in conversation with a representative of this journal the other day, said he did not believe the public could be induced to buy coal now if the retail price were reduced by two dollars a ton.

The tendency of the men employed at the mines to leave the fields for other work is very slight. Two or three days' work a week brings in as much as many of the men would make at other occupations. Besides, like their employers and the dealers, they are expecting every week to see an improvement in the situation.

MINE And COMPANY NEWS

ALABAMA

The Manchester Coal Co., Manchester, Walker County, has completed a spur line about two miles long to its new developments and is preparing to install two large steam shovels. The stripping operation is on the Black Creek Seam, the spur track connecting with the Alabama Central R.R.

James Gallagher and John R. Smith have sold the lease operated by the **Sunlight Mining Co.** to the **I. O. Drewry Mining Co.** This is also a stripping operation and the production of coal will be resumed by the new owners.

ILLINOIS

After having made extensive repairs the **Decatur Coal Co.** has started mining coal. The tipple has been covered with galvanized iron and has been otherwise repaired in its structural frame. The mine and equipment are now in good condition for the coming season. Several days each week are being put in by the miners.

The Midland Counties Coal Co. is advertising an issue of $222,000 of bonds bearing 6 per cent interest and due in from ten to fourteen years. The bonds are offered at prices which will yield, if held to maturity, approximately 7½ per cent. The bonds are a direct mortgage on the property of the company located at Sherman, Pawnee and Kincaid, Ill., and at Otter Creek Junction, Ind. The company was organized in 1913 for the purpose of acquiring the properties of the Illinois Midland Coal Co. It has capital stock of $3,000,000, all of which is owned by the Commonwealth Coal Co. of Chicago. The mines have been leased to the Peabody Coal Co. until 1938.

INDIANA

Harold Henderson and William Lackey, of the legal department of the United Mine Workers in Indiana, have tried over 50 cases before the state industrial board. All of these cases were filed with the board by miners who were injured or by relatives of miners who were killed during their work. The board was in session from June 10 until June 24. Courts were held in Sullivan, Clinton, Rockville, Terre Haute and Brazil.

KENTUCKY

The Bollinger-Jones Coal Co. made an assignment at Hazard recently and the receiver named was the directing head of one of the producing companies holding a heavy amount of claims against the concern. A statement has been issued to the effect that the company will be able to pay its indebtedness if prompt collections can be made. Some of the mines in the Hazard field are said to be heavy losers.

The Secretary of State has approved articles of incorporation of the **Crestmont Coal Co.**, Crestmont, $10,000 capital, J. A. Heaton, F. Sternberg and G. F. Bobbitt, all of Crestmont.

OHIO

The United Coal Sales Co., is a new wholesale concern located in Columbus, which handles the output of the **Pomeroy Collieries Co.**, in the Pomeroy Bend field and the **Twin Ada Coal Co.**, in the Jackson field. C. E. Aumiller, V. G. Miller and W. E. Evans are in the management of the company.

A total of $15,000 has already been expended by the **Rush Meadows Coal Co.**, Cincinnati, in establishing a coal yard in Norwood, and the company is contemplating spending $25,000 more in the construction of flight conveyors and screen equipment.

Contracts approximating more than $101,000 to supply coal to the public schools in Cincinnati have been awarded by the **Cincinnati Board of Education** to five separate coal companies in the city. Public schools were divided into five districts and bids were received separately in each district. The bids received for supplying the schools with fuel are said to be $2,500 lower than those received by the board last year.

PENNSYLVANIA

The Ellsworth mines of the **Ellsworth Colliers Co.**, a subsidiary concern of the Lackawanna Steel Co., has resumed work in full at its No. 1 plant, after a shutdown of almost six months. About 500 miners are employed and additional men will be taken on as necessary. All of the coal produced will be pulverized and shipped to the byproduct plant of the steel company at Buffalo.

Mayor Connell has lifted the ban that has been on the **John Gibbons Coal Co.** in South Scranton recently and the company has resumed operations. Work at the mine was halted by the city because of complaints registered by two property owners over the workings of the company, but an agreement has been reached among all concerned and the city is satisfied.

Annual meeting of the **Bourne-Fuller Co.** was held at the company's coal and coke operations at Searights. The Bourne-Fuller Co. leased the property formerly owned by Taylor Coal and Coke Co. Officers re-elected are R. S. Hall, Cleveland, president; F. K. Moore, Cleveland, vice-president; F. H. Ulmer, Cleveland, treasurer, and D. B. Stauft, of Uniontown, secretary and general manager. The company now is shipping coal only.

Conditions in the Connellsville coke region remain practically the same, except that **W. J. Rainey, Inc.**, is putting out all its ovens and will ship coal. This leaves but very few ovens in the region going.

The directors of the **Brier Hill Steel Co.** have decided to omit the dividend due on the common stock July 1. In the last quarter 40c. a share was paid on the issue and in a previous quarter 60c. The regular quarterly dividend of 1¾ per cent was declared on the preferred stock.

The Windsor Coal Co., of Pittsburgh, has contracted for the instalation of two balanced Marcus screens to be installed in their new tipple at the Beech Bottom mine.

The Paramount Coal Co., has been incorporated with a capital of $100,000 to mine and sell coal. Operations will be in the Massillon field. Among the incorporators are John Boxley and Orris Ames.

Coal dredgers in the Susquehanna River at Sunbury have discovered a new ledge of coal, said to contain 10,000 tons of merchantable sizes. Lest the shifting currents carry it away before it is "harvested" the dredgers are working day and night and are collecting 600 tons a day.

WEST VIRGINIA

E. M. Burns and William H. Smith, of Ebensburg, Pa., have become the owners of the **Foye-Splint Coal Co.'s** holdings of Charleston. They are situated in the Elk River district of Clay County and comprise 1,000 acres of premium coal.

Announcements of the 12th meeting of the **Mine Inspectors' Institute of America**, to be held July 12-14, in Charleston, have been mailed to the members of the Institute, by Secretary J. W. Paul, who extends an invitation to all state, county and provincial mine inspectors in the United States and Canada, to attend the meeting. The program is an interesting conference of mine inspectors on all matters pertaining to coal and metal mining. Membership dues for the years 1918 and 1919 have been remitted and old members are entitled to continue their membership by the payment of dues ($5) for 1920 and 1921; there is no initiation fee. New members will be received at the meeting, when the proceedings for 1920 and 1921 will be distributed.

Robert M. Jones and John Koblegard will organize a company to mine coal on an extensive scale in the Clarksburg section. They have incorporated the **Jones-Koblegard Coal Co.**

A deal was consummated early in June by Brownsville people for the purchase of about 1,400 acres of Freeport and Kittanning coal in Clinton district of Monongalia County. The consideration involved was in the neighborhood of $35,000. None of the coal land has been developed, only a few openings having been made to secure coal for household use.

The West Virginia charter of the **Cleveland Cliffs Iron Co.**, of Ishpeming, Mich., and Cleveland, Ohio, has been surrendered to the Secretary of State, this company having decided to become an Ohio corporation. The mines of the company are located in the Logan field.

Approximately 250 acres in Mingo County are to be developed by the **West Williamson Coal Co.**, the capital stock of which has been increased from $25,000 to $75,000. The company was only organized a short time ago, C. S. Waugh being the president as well as general manager.

Improvements are to be made at the plant of the **American Rolling Mill Co.**, at Nellis, Fayette County, where several mines are located. At the point named the company plans to erect a store, office building and theater. Headquarters of this company are at Middletown, Ohio.

After increasing its capital stock materially so as to bring the interests of the company in Pennsylvania, West Virginia and Kentucky into one organization the **Home Coal Co.** has changed its name to the **P. V. & K. Coal Co.** This concern is headed by A. K. Robinson.

Organization of the **William Dempster Coal Co.**, of Charleston, with a capitalization of $50,000, presages development of coal territory on a fairly large scale. Largely interested in the new concern are: William Dempster, Alice Adalade Dempster, Ducan Reid, Elizabeth Reid, and C. S. Munro, all of Charleston.

Within the next few months it will be possible for the **Stone Coal Co.** to begin operations at its new plant at Sand Run in Upshur County. The company has secured a tract of coal at this point on the Charleston Division of the B. & O. and is now installing a siding. No time will be lost in driving a heading and in putting in a plant.

BRITISH COLUMBIA

The reorganization of the **Western Fuel Corporation of Canada, Ltd.**, until lately known as the **Canadian Western Fuel Co.**, is complete. The change will not bring any important reconstruction as to management or policy. The directing heads are the same, G. W. Bowen being the vice-president and managing director, and John Hunt, general manager. It is likely, however, that the launching of the new corporation presages a disposition to be ready for an extension of the development of the company's mines when market conditions warrant.

It is stated that the collieries of the Province of Alberta are contemplating entering the bunkering business in British Columbia. Howard Stutchbury, Trade Commissioner for Alberta, has been visiting the city of Prince Rupert arranging for bunkers for the best grades of Alberta coal for the purpose of supplying the needs of the mercantile traffic to and from that port.

NOVA SCOTIA

At least one million tons of Cape Breton coal will be shipped to the Montreal market by the **Dominion Coal Co.** this summer, according to Alex Dick, general sales agent of the company. The company has already shipped 150,000 tons, or as much as was sent up the St. Lawrence River during the whole of 1920.

Traffic News

Directors of the **Chicago, St. Paul, Minneapolis and Omaha R.R.** have deferred until next September action on dividends of both preferred and common stock for the first half-year, pending adjustment of accounts with the Government.

In the complaint of the **Brazil Clay Co.**, an examiner recommends that the rates during federal control on intrastate shipments of bituminous coal from mines in the Clinton and Brazil districts to complainants plants at Brazil, Ind., be declared unreasonable.

Application has been made to the Commission by the **Huntington and Broad Top Mountain R.R. and Coal Co.** of Philadelphia, for authority to issue securities or to assume obligations or liabilities with respect of the securities of others, in connection with the purchase of four new locomotives and ten new all steel passenger train cars costing $411,393.

The Pennsylvania public service commission has ordered the Lehigh Valley to revise its through transportation rate from the Jeddo and Latimer mines to West Hazleton, via Wilkes-Barre and Hazleton Ry. Junction. The new rate is to be $1.20 a gross ton instead of the combined cost of $1.96 for prepared sizes and $1.68 a ton for steam sizes.

The I. C. C. has authorized the **Pittsburgh & West Virginia Ry. Co.** to construct an industrial spur or branch line extending from a point on its main line near Virginia Station, W. Va., to a point in Washington County, Pa., a distance of 3.2 miles, for the purpose of opening up new coal mines.

The Commission has assigned the complaint of the **Ideal Fuel Co.** vs. the Director General of Railroads, for hearing before it on July 15, in Washington.

In the complaint of the **Lehigh Valley Coal Co.** an I. C. C. examiner has recommended as follows: Rates on unprepared anthracite from various mines and culm banks on the Lehigh Valley R.R. in the Lehigh and Wyoming regions in Pennsylvania, to breakers in the same regions for preparation or for re-preparation, and reforwarding by way of that railroad, to be held unreasonable. Rates on the same commodity from Rahn Colliery at Seek, Pa., to other collieries and washeries on the Lehigh and New England R.R. from June 25, 1918 to Aug. 15, 1918, unreasonable. Rates on Buckwheat No. 3 from collieries and washeries in the Panther Creek mining district, Pa., to Power House (Hauto), Pa., from Jan. 1, to June 24, 1918, legally applicable. Rates from June 25, 1918 to Feb. 28, 1920, unreasonable. Waiver of undercharges authorized.

In the complaint of the **Union Traction Co. of Indiana**, an examiner recommends that rates for intrastate transportation of bituminous coal from mines in the Linton group in southwestern Indiana to destinations northeast of Indianapolis from June to October 1918 are not unreasonable.

The Tampa, Fla., Coal Co., in a complaint to the I. C. C., alleges unreasonable rates on coal from points in Alabama to Tampa under General Order No. 28 and asks for reparation.

An I. C. C. examiner recommends that the rates on smithing coal from mines in Pennsylvania and West Virginia, sacked at St. Louis, and reshipped to Western destinations, which were complained against by the **Romann and Bush Pig Iron & Coke Co.**, be held to be reasonable.

In the complaint of the **Opp Coal Co.** an examiner recommends that rates applicable to certain cars of bituminous coal shipped intrastate during federal control from points in or contiguous to the Linton and Princeton districts to Aurora, Ind., be held unreasonable to the extent that they exceeded $1.30 a ton subsequently established.

The Jeddo-Highland Coal Co. complains against unreasonable rates on anthracite coal shipped between June 25, 1918, and March 22, 1919, from mines and culm banks to breakers in the Lehigh region.

The Chicago, Lake Shore & South Bend Ry. Co., of Michigan City, Ind., in a complaint to the commission attacks as unreasonable the rates on coal from Cass, Ind., to Michigan City by reason of the failure of the Illinois Central to meet the rate in effect between the same points via a different route.

The Utah Fuel Co., of Sunnyside, Utah, complains against unreasonable rates on slack from its mine tipple to storage bins at Sunnyside.

The Michigan Paper Mills Traffic Association of Kalamazoo complains against unreasonable rates on coal from the Ohio and inner and outer Crescent fields to destinations in Indiana and Michigan.

Personals

D. Hugh Jenks, general manager of the Producers Coal Co., with headquarters in Cincinnati, made an airplane trip from that city to Bristol, Tenn., to attend the funeral of a business associate.

F. E. Clark has been appointed assistant commissioner of the Tidewater Coal Exchange, Inc., with office in the Central Square Building, New York City.

Quinn Morton, president of the Wood-Morton Fuel Co., of Cincinnati, is a patient in the Good Samaritan Hospital.

W. P. Tams, president of the Guyan Collieries Corporation, of the Gulf Smokeless Coal Co., and of other smokeless concerns, reached Vancouver, B. C., early in June on his way home from a trip around the world.

The Marion County coal region had as a visitor during the early part of June **Edward Hines**, widely known in Chicago lumber and coal circles. Mr. Hines has large coal holdings in northern West Virginia.

During the first week of June **Harry Whyel**, of Uniontown, Pa., who is largely interested in coal lands in northern West Virginia, left for Europe expecting to visit France, Switzerland, Holland and Scotland during the summer months. He will be at Edinburgh during the International Rotary convention.

A recent visitor in the Fairmont region of West Virginia was **C. T. Denly**, of Cleveland, who is at the head of the Schroeder-Kelly Coal Co.

J. A. Paisley, of Cleveland, interested in the Valley Camp Coal Co. of northern West Virginia and in the Kelly's Creek Colliery Co. in southern West Virginia, was in Fairmont early in June.

A recent visitor in the southern part of West Virginia was **George L. Rogers**, of the Mon-Scott Fuel Co., of Morgantown.

Josiah Keely, general manager of the Cabin Creek Consolidated Coal Co., with headquarters at Kayford, was at Fairmont early in June attending the sessions of the West Virginia Mining Institute.

A visitor in northern West Virginia during the early part of June was **J. J. Ross**, of Logan, general manager of the Logan Mining Co.

Frank J. Honan, who is well known to the New York trade from his former connection, has returned to that city and will represent the Tuttle Corporation, coal exporters of 15 Broad Street, in the New England States. Mr. Honan was recently connected with the Logansport Coal Corporation of Pittsburgh, Pa.

Association Activities

Central Coal Association

The members of the executive committee of the association met in Altoona recently to draft the policy of the association relative to the stand taken by the United Mine Workers of District No. 2, referred to the committee at the meeting a week previous. After a lengthy discussion, it was decided that the gravity of the situation requires further consideration of the policy to be pursued.

The failure of the mine workers to respond to the request of the association for a conference has resulted in a widespread opinion among operators that the principle of collective bargaining has failed and that no relief can be expected from that source in the way of co-operation.

The fact that competitive regions are working on a 1917 scale or less, has resulted in a loss of orders and contracts which have been held by the union operators, in many instances covering periods of twenty years. Difference between the union scale and those paid by competitive regions results in a lower cost by 80c.@$1 per ton.

If the depressed business conditions should last until the expiration of the present union scale, which expires April 1, 1922, there being no indication of improvement in sight, the operators will suffer a loss of business that it has taken them many years to establish. The effect of this situation will not be confined to operators alone, but to thousands of miners, merchants, bankers, professional men and others. A readjustment of the scale seems imperative.

Instead of recognizing a condition that exists, the executive officers of the union are busily extending propaganda for the nationalization of coal mines and a control of industry by the miners. In other words, they are busily engaged in attempting to sovietize the Central Pennsylvania field. This situation, which not only concerns the operators, but all invested capital, is so serious that the executive committee of the Central Association feels that it requires further serious consideration and will meet in the near future to discuss the proposition further.

Industrial News

Cincinnati, Ohio—Offices of thirteen coal companies whose headquarters are in Cincinnati, have recently moved their offices from former locations to more spacious quarters in the new Dixie Terminal Building. Those who have so moved are; Thomas N. Mordue Coal Co.; Semet Solvay Co.; Elkhorn Piney Coal Mining Co.; Interstate Coal & Dock Co.; Ohio & Kentucky Fuel Co.; Logan Pocahontas Fuel Co.; Riddle Coal Co.; Old Dominion Coal Corporation; Okey Meadows Elkhorn Coal Co.; Carter Coal Co.; Ogle Coal Co.; M. A. Hanna Coal Co. and Jewett, Bigelow and Brooks.

New York, N. Y.—The Hercules Powder Co. has purchased the properties, assets and business of the Aetna Explosive Co., Inc. By this purchase the Hercules company will acquire high explosives, or dynamite, plants near Birmingham, Ala., Emporium, Pa., Sinnamahoning, Pa., Ishpeming, Mich., and Fayville, Ill., two black blasting powder plants, one at Goes Station, Ohio and the other near Birmingham, Ala., a plant for the manufacture of blasting caps and electric blasting caps at Port Ewen, N. Y. and a plant for the manufacture of fulminate of mercury, for use in blasting caps, at Prescott, Ontario, Canada.

Obituary

C. F. McNamara, a retail coal merchant of Superior, Wis., was stricken with apoplexy recently and died within a few minutes after being taken home. He had been a resident of Superior for twenty-seven years.

George Jones, coal operator and merchant, of East Bernstadt, Ky., was shot and instantly killed while riding on the running board of an auto, near that town, the shot coming from a mountainside some hundreds of yards away. Chris Evans, a half-crazy pioneer of the district, was arrested and charged with the murder.

Coming Meetings

The Huntington Coal and Industrial Exposition will be held in the Chamber of Commerce Building, Huntington, W. Va., Sept. 19 to 24 incl. Chairman of committee, Thomas A. Palmer, Huntington Chamber of Commerce, Huntington.

American Institute of Mining and Metallurgical Engineers will meet at Wilkesland, Ohio, Sept. 14, 15 and 16. Secretary, Bradley Stoughton, 29 West 39th St., New York City.

National Association of Cost Accountants will hold its annual convention at Cleveland, Ohio, Sept. 14, 15 and 16. Secretary, S. C. McLeod, 130 West 42d St., New York.

Mine Inspectors' Institute of America will hold its twelfth annual meeting at Charleston, W. Va., July 12 to 15. Secretary, J. W. Paul, Bureau of Mines, Pittsburgh, Pa.

Illinois and Wisconsin Coal Dealers' Association will meet at Chicago, Ill., July 13, and 14.

The American Mining Congress and National Exposition of Mines and Mining Equipment. The twenty-fourth annual convention on Oct. 17 to 22 at the Coliseum, Chicago, Ill. Assistant secretary, John T. Burns, Congress Hotel, Chicago, Ill.